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The South of Today.

The South is on the verge of unprecedented industrial expansion. Equipped by nature with abundant raw material, it is being supplied with the machinery necessary to turn its resources to the best account. It needs more machinery. Its well-laid plans must be perfected. No better preparation for this can be had than in taking stock of the present. In this Supplement the Manufacturers' Record presents a series of striking papers dealing comprehensively, but tersely, with accomplished facts and with reasonable prospects. By such means the man of affairs, too busy to devote years to the study of a constantly-increasing mass of statistics and statements, is enabled to grasp readily the situation. Men who are authorities in their respective fields—experts in iron, cotton, lumber, phosphate and other bases of Southern manufacturing, or enjoying well-earned distinction in Southern development—have contributed to this survey. Among them are the following:

Governor G. W. Atkinson of West Virginia.

Governor Joseph F. Johnston of Alabama.

Governor Daniel L. Russell of North Carolina.

Hon. William J. Northen, ex-governor of Georgia.

Hon. William A. MacCorkle, ex-governor of West Virginia.

Hon. Charles W. Dabney, president of the University of Tennessee.

Mr. Edward Wheeler Parker, statistician of the United States Geological Survey.

Mr. B. E. Farnow, director of the New York State College of Forestry.

Mr. E. W. Myers of the North Carolina Geological Survey.

Col. J. B. Killebrew, a leading authority upon Southern materialities.

Mr. D. A. Tompkins, the practical preacher of cotton manufacturing.

Mr. H. H. Hargrove, the mill-builder of the Mississippi valley.

Mr. H. F. De Bardeleben, a pioneer in Alabama iron-making.

Mr. Edward H. Sanborn of the National Association of the American Manufacturers.

Mr. Archer Brown of Rogers, Brown & Co.

Col. James L. Orr, a leader among textile men of the Piedmont region.

Mr. Cuyler Smith, organizer of cotton mills.

Mr. W. E. Damon, the advocate of flour-milling in the South.

Mr. John L. Williams, one of Richmond's leading financiers.

Mr. W. J. Kilduff, secretary of the Gulf Coast Lumber Association.

Mr. Frank Hammond, viewing manifestations of twenty years from a banker's standpoint.

Mr. George R. Brown, working for the welfare of Arkansas.

Mr. Charles F. Huhlein, a manufacturer of Kentucky.

These gentlemen, with others, have furnished the material for one of the most complete pictures of the South of today ever drawn. No effort has been made to follow conventional treatments. Individual States have been given no minute consideration. The plan of the Supplement is topical. From the broadest sort of view-point the forces co-operating in the upbuilding of the South have been studied, and have been described without regard to artificial boundary lines. The stories of the evolution of the iron and steel industry, of the growth of textile manufactures, of lumbering, mining and divers auxiliary agricultural operations have been told accurately and broadly. Brought together in this way, they form a Southern compendium full of interest to would-be investors and would-be enterprise, and destined to be a source, not merely of ephemeral entertainment, but a valuable guide for the future.

They show what the South has already accomplished, and what it is doing today, and mark out the lines upon which the South is to progress safely and conservatively, as its immense resources become, under the spur of enlivening capital, contributors to the commerce which this country is sending to all quarters of the globe.

The South's story is a fascinating one. Two large volumes have been written. Their sequel is only beginning. It is full of the promise of greater interest and profit than either of the preceding ones.

THE LUSTY SOUTH.

Thirty years ago the South was crippled and poverty-stricken. Its natural resources of wealth were unsurpassed. But it was without strength, opportunity or implements to develop them. Imperfect means of transportation and communication, a disorganized labor system, the ranks of the most vigorous element in the population depleted, practically no ready money and the absence of the outside helping-hand were enough to appall a most sturdy people. But from wreck and ruin the South has emerged energetic, progressive, sanguine. Today it has \$1,000,000,000 invested in manufacturing, with an annual output valued at \$1,500,000,000, and paying \$350,000,000 in wages. Its cotton mills, with 5,000,000 spindles, representing an investment of \$125,000,000, already consume yearly 1,400,000 bales of cotton. It is producing about 2,500,000 tons of pig-iron a year, 40,000,000 tons of coal, from 10,000,000 to 11,000,000 bales of cotton, probably 10,000,000,000 feet of lumber and 750,000,000 bushels of grain, and its railroads, steadily improving and increasing in length, have already a 50,000 mileage. The South has accomplished much. It has much more to do before its full growth shall have been attained. That it will be equal to its mighty task is proved by its present lustiness.

Its virility is no new trait of the South. It is not an artificial acquirement. It has existed as long as the South, but has at times been hampered by shortsightedness within or by unfriendly pressure from without. It has more than once been misdirected or wasted in rash experiment. In experience it has gained in judgment, though, until the point has been reached where it may be exerted to the best and truest ends, to the enrichment of its home and the well-balanced development of the whole country.

It is grounded and rooted in the South's stores of minerals, timber, cotton and general agricultural supplies capable of wonderful expansion for the enlargement of domestic trade and the extension of foreign commerce.

It is manifested in cotton mills sending their products to the other side of the globe and equipping themselves with latest machinery for the manufacture of higher and higher grades of goods; in great furnaces, with their closely neighboring coke ovens; in its vast output of coal supplied to the navy and to the merchant marine of the world; in its cottonseed-oil plants, tending to make of what was once waste a valuable by-product approaching in value that of the primary staple; in tobacco factories and warehouses, known in all great centers of civilization; in steel works preparing to set the pace at home, if not to dominate in foreign markets; in lumber mills enlarged and increased in number to meet a demand accelerated by a decline in older timber regions; in furniture and woodworking factories, turpentine stills and plants for the production of naval supplies; in phosphate beds of practically inexhaustible stock, destined to fix the ultimate price of fertilizers; in canneries and packing-houses utilizing the surplus of diversified farming, that makes of the South a market garden for the United States; in the sinking of oil wells and the employment of natural gas in industry; in advantage taken of immense water-powers for the application of electricity to lighting, motion and creative energy; in mines of zinc, lead, pyrites, salt, gold, manganese, mica, bauxite and valuable clays of many kinds; in flouring mills to be added unto as the wheat area spreads with the scattering of fertilizers made of native phosphate rock, and in the construction of railroads at once the invigorating veins of the section and the arteries feeding commercial centers on the Gulf and the South Atlantic coasts.

Iron and Steel.

Of these manifestations, the iron and steel industry is, perhaps, the most notable at present. This has had its dissonance, but has at last come into vibration with the master-note. When Alabama pig became able to undersell English iron in English markets the South's destiny as an iron-maker was revealed. The manufacture of steel was but a logical advance. The explanation was given in Alabama, where the advantage of contiguity of coal, iron ore, limestone and labor supply was strikingly demonstrated, and where in the Birmingham district the spectacle could be presented within a radius of three miles of limestone deposits, coal mines, coke ovens, furnaces stocked with ore brought only six miles and using with the coke ovens gas generated from the coal, from which also other valuable by-products are recovered on the spot, while the furnace slag, ground and mixed with lime, is converted close by into

hydraulic cement, a plant, the largest but one in the country, for the manufacture of steel by the open-hearth process and a wire and rod mill so near that billets may be directly conveyed from the cutting-up shears of the one to the heating furnaces of the other without the expense of one cent for freight.

It is no wonder that, following this successful demonstration of the possibilities in the union of money, energy and material at Birmingham, Ensley, Anniston, Bessemer and other points at a time when the world is requiring more iron and steel than ever before, undertakings at or near Birmingham growing out of the iron industry have been started, representing an investment of more than \$5,000,000, or that wide-awake Southerners and enterprising Northern capitalists have formed great corporations, backed by millions, to develop to the utmost the ore deposits of Tennessee, Alabama and Georgia, and to guarantee the permanency of the opportunities now enjoyed and their cultivation upon safe and conservative lines.

This phase does not appear in the Alabama-Tennessee field alone. Southwestern Virginia is another strong center. There has been formed, with headquarters at Bristol, a company with an authorized capital of \$20,000,000, which controls twelve coke blast furnaces in Virginia, Tennessee and Kentucky, three charcoal furnaces in Tennessee and Virginia, a basic open-hearth steel plant at Middlesborough, Ky., a rolling mill and horseshoe factory at Max Meadows, Va., a cast-iron-pipe foundry at Radford, Va., 500 coke ovens in Virginia, 132,000 acres of coal land with mines having a daily output of about 5000 tons in Virginia, 212,000 acres of ore lands in Virginia, Tennessee and Kentucky with workings averaging 4000 tons a day, extensive limestone and dolomite deposits, five foundries and machine shops and 134 miles of standard-gauge railroad in regular operation with freight and passenger departments.

The beneficial touch of corporate capital in this domain has been felt also at Roanoke, Goshen Bridge, Big Stone Gap, Va., Sheffield, Gadsden, Ironaton, Trussville and Talladega, Ala., Greensboro, N. C., Cedartown, Ga., and elsewhere, while individual enterprises have also received an impetus and the iron age is opening in other States as far removed as Texas and West Virginia. The strength of the movement is revealed in the fact that what has been accomplished at the older locations may be done elsewhere.

Coal and Coke.

With the changed methods of iron production, coal and coke have had a larger use, and have kept pace with the demand; in fact, the growth of the iron industry has been recorded in some degree by the advance in Southern coal and coke production. A quarter of a century ago the output of Southern coal was 4,393,914 short tons. It has increased to 40,100,000 tons. Although the output in West Virginia has had the greatest actual increase, leading in the South, that of Alabama, holding second place in this section, has shown the largest percentage of increase, while the percentages of Virginia, Tennessee and Kentucky have been comparatively steady, and the output of Texas has been multiplied by five during the past ten years. West Virginia's coal, finding large outlets in at least four directions, has not been turned into coke for Southern furnaces exclusively to the proportional extent of Alabama coal. But like Alabama coal, though in larger proportion, it has fed the industries at Southern ports attendant upon the coaling of the navy or foreign and domestic merchant steamers. Alabama has sent much coal down the Mississippi for use on the Louisiana sugar plantations, and to Mobile as fuel for commerce, but much of it has gone into coke.

Alabama is now in the South second in coke production to West Virginia, which has about 20,000 square miles of coal, oil and natural-gas area. In the latter State the coke output has advanced since 1880 from 138,755 tons to 1,925,071 tons; in the former it has risen from 60,781 tons to 1,663,029 tons. The record for the year just closing is likely to show a still more striking increase, with Virginia taking greater strides.

The Textile Field.

Cotton-growing used to be regarded as the dominating power in Southern economy. It was largely responsible for a fallacy that the South could do better as a producer of raw material for manufactures than as an artisan and mechanic handling in many processes its own cotton, lumber and leather at home. This theory retarded industrial life, though it did not entirely suppress it, especially in those States where slave-holding was becoming a burden. In other States, however, the eminently sound policy of placing cotton mills in close touch with the cotton fields, if not actually within them, was successfully essayed at an early day.

Under more favoring circumstances it has been extended through the Piedmont region, teeming with reserves for the industrial army, readily and intelligently adapting itself to the betterment of changed occupations, and around its gratifying results, notably at Charlotte, N. C., have gathered mill-supply establishments, machine shops and minor industries, materially affecting public opinion, inspiring to similar efforts in other directions and more than compensating for increasing disadvantages encountered by the older cotton regions attempting to compete on traditional lines with the newer. Its value has become enhanced as the source of power has evolved from direct water,

through steam obtained at a minimum cost, to electricity derived from streams having their heads high up in the mountains of eternal spring, as abundant fuel has at places been mined almost within shovel-throw of the mill boilers, and as local capital, patiently and persistently pocketing its 10 per cent. dividends, has been willingly and gladly supplemented by that from the North and East, in enlargements of well-proven undertakings, in independent buildings or in such a phase as the investment by a Massachusetts textile firm of over two millions of money in the construction of a duplicate factory at Huntsville.

In the drift of the center of cotton production toward Texas has followed the mill-builder, until flourishing concerns have set an example and given an impulse to others in the Mississippi valley and have started practical projects in Texas itself.

Meanwhile, the success of plain goods being assured, and new mills even closer to the cotton fields entering upon that particular plane, the manufacturers of the older communities are gravitating to a higher class of goods, either by re-equipping existing buildings or by erecting others and filling them with up-to-date machinery. This pregnant variation, to be expected with the reduplication of the number of spindles within twenty years from 667,000 to 5,000,000, and with the Southern consumption of cotton increasing within ten years from 547,000 bales to 1,399,390 bales, has been accompanied by a tendency to diversification of crops among the cotton-growers. The ability thus acquired to raise food and feed supplies at home, rendering the farmer comparatively independent of the fluctuating price of the staple, the adoption of planting methods looking more to the character or quality of the crop than to its quantity, and to the consequent stricter attention to the improvement of farm labor, will reduce the cost of cotton production, even while its quality shall be maintained, as a larger quantity is produced to supply a world's needs, and will attract more mill capital than ever to profit in the South.

The same intensive ideas will persist in the handling of cotton's great by-product, cottonseed. Already the crushing of the seed for its oil and meal, sought in domestic and foreign markets, requires \$40,000,000 capital, with millions of pounds of material still employed only primarily, and as more money seeks an outlet in this direction, as wider differentiation in the use of the oil occurs, the wealth of the South will grow.

Methods of spinning the fiber and of crushing the seed in vogue in the South point to the ultimate principle in textiles, the derivation by the producer of all the benefits possible from the product. When are established plants in which shall be conducted all the handling of cotton, from the boll to the sheetings, duck, twine, undergarments of knit goods and colored prints, to the oil prepared for table dressings, lubricants and divers uses in the arts, to the meal ready to be fed to cattle after all industrial ingredients have been removed, to the hulls a basis for a fertilizer or a fuel, and even to the stalks and other waste, perhaps, converted into paper or other commodity; when bonded warehouses shall give the farmers a convenient means for using their crop as collateral and at the same time shall act as a regulator of the market; when bales sent to other parts of the country or to foreign lands shall be compressed in such a way that they shall be exempt from pillage, protected from damage and relieved from many of the burdens of insurance, freight and middlemen, which today entail an annual loss upon farmers of certainly \$20,000,000 for an average crop, the impression that cotton has lost any of its regal attributes will be dissipated. It is by no means an absolute monarch, and never can be. But as long as cotton is the cheap material for clothes, and as long as civilization, not yet universal, teaches more and more men and women to use clothes, it will be a mighty monarch, though in triple or quadruple alliance with others.

Timber Resources.

Close to cotton as a source of wealth and a swayer of the destiny of the South is its timber. The supply of this is not exhaustless unless the lumbermen pursue a course different from that which has in the hastening decline of forests of the North and Middle West placed the South in the commanding position it now occupies. Otherwise, the day of that position is a short one, even taking into consideration the accelerated substitution for wood of iron, steel, brick and stone in building operations. As it is, the drain upon Southern long-leaf, loblolly, cypress, oak, hickory, ash, poplar and other woods is increasing rapidly. In the Carolina pine belt spurs of great railroad systems are extending into the forests, feeders for saw-mills operated by individuals are lengthening and mills of greater capacity are being erected. In the Gulf coast States, where twenty years ago lumbering was an insignificant industry, are immense timber belts, more valuable probably than any other in the United States, now becoming accessible by the construction of railroads and creating growing markets at Mobile, Pensacola, New Orleans, Galveston, Beaumont and other points. At one place near Mobile, for instance, the manufacture of 20,000 shingles a day not many years ago by negroes, who appropriated drift cypress logs for that purpose, has grown into an industry in which five mills turn out more than a million shingles per day.

In ten years, as similar developments have occurred, the value of the output of Southern lumber mills nearly trebled, and had reached \$105,000,000 in 1890. The advance since then has been steady, and it is safe to say that the

value of the produce of forests, including lumber, naval stores, fencing, staves, crossties, hoops and bark, is as much as that of the annual cotton crop, if not more than it. The South thereby wields an enormous power, which may not diminish if the development of the forests is conducted as an investment rather than as a speculatioon, and if, by the adoption of matter-of-fact, reasonable plans of forestry, preventing waste and providing for young growth to take the place of that removed, the South is saved from the predicament confronting other regions, and which has compelled continental nations to supply much of the practical experience derived from scientific methods for the preservation or the restoration of woodland.

Nature's Fertilizer.

Much of the land denuded by timbermen will be available for no other purpose than that of the maintenance of the timber supply. A portion of it must inevitably be given to agriculture. Before all suitable soil has come under the plow the very instinct that has substituted cotton-manufacturing for cotton-growing, or that has turned cotton fields into wheat fields and vegetable gardens, will have led to the enrichment or strengthening modification of worn-out land by treatment with fertilizers to a greater extent than ever before. Cottonseed, cowpeas, corn and other forage will play an important part in this as cattle-raising is encouraged, but from below ground will come the great tonic for the surface, phosphate rock.

There will be enough of this for the South, with plenty to send to less favored countries. The country began to draw upon this resource in South Carolina thirty years ago. Twenty years later Florida became a source of supply. The phosphate industry of both States, in spite of the marked enterprise shown by workers in the latter, has been subjected to vicissitudes of one kind and another. Still, the development has continued, and is now upon a satisfactory basis, the shipments of rock from South Carolina during the past five years aggregating 2,200,000 tons, and from Florida 3,100,000 tons.

At a time of comparative depression in these States was announced the discovery of phosphate rock in Middle Tennessee. That was in 1893. Within twelve months the deposits were being worked with constantly added vigor, and their large percentage of phosphate of lime had given the products a standing wherever in this country commercial fertilizers are made. Now there are workings in Hickman, Maury, Lewis, Wayne and other counties, and the shipments have increased from 4320 tons in half a year in 1894 to more than 500,000 in 1899. This output is as nothing when it is remembered that the field, with a length of twenty miles and a breadth of three miles, contains an estimated average of 9256 short tons to the acre, or 355,000,000 tons.

On Other Lines.

Changes wrought in the agriculture of the Carolinas and Virginia by the working of phosphate beds in Florida and South Carolina, and felt also in the middle South, presage the effect in that section of the discovery of phosphate in Tennessee upon tobacco-growing and crops for the early markets of the North, in addition to the stimulus to be given to industry in the shape of fertilizer factories. Singularly enough, almost contemporaneously with the latest discovery of phosphate was begun, as a feature of the movement away from the all-cotton notion, an earnest advocacy of an extension of wheat-culture in the South and of activity in flour-mill building. The South is decidedly short on wheat, but men who preach, with the intensive South as a text, believe that the portion of the proceeds of the cotton crop sent to other quarters to purchase breadstuff should be spent at home. That wheat can be raised where it has been comparatively unknown for years has been demonstrated. The next step is to give the South the number of mills sufficient to make the flour required for home consumption, if not for export to the West Indies and the Latin-Americanas. The capital thus gainfully invested would be no inconsiderable addition to the South's assets, and the wider employment for labor thus furnished would make wider home markets for agriculture.

On the Verge.

Broadly sketched, this is a picture of the industrial South of today. Details might be filled in indefinitely. Much could be written of the marbles of Tennessee, Georgia and Texas, the lead and zinc of the Missouri-Arkansas hills, the rock-salt mines of Louisiana, the building stones of the Carolinas and other States, the petroleum of Texas and West Virginia, the ship-yards of Virginia, the car works of Alabama, the woodworking plants of North Carolina, the fruits of Florida, Louisiana and Texas, the peaches of Georgia, the apples of Virginia and North Carolina and the truck farms stretching from the Virginia capes along the coast to the Rio Grande. Enough, though, has probably been set forth to indicate the marvelous interworking of manufacturing and agricultural activities which are destined to bring the South into its own.

Never before have Southern men so generally comprehended their possibilities or exerted themselves so vigorously to realize them. It has even become the fashion for men in high station to subordinate party politics to the politics that will open mines, build furnaces, clear forests and build railroads. Never before has outside capital seeking safe, legitimate investment viewed

the South so longingly. It knows what wealth above and below ground awaits its fructifying impress.

The South has enough material for industry and to spare. It is equipping itself with the machinery to manipulate that material as rapidly as it may. Public sentiment is crystallizing against the influences that would hinder healthy, strenuous growth. The means which have diverted to Newport News, to New Orleans, to Galveston and to other ports goods for foreign marts the traffic that once found an outlet elsewhere, that has made great trade centers of Richmond, Atlanta and Louisville, and which have made effective the combinations of the cotton mill and the cotton field and the furnace and the mine have not been exhausted. Nor is their task completed. It has hardly begun.

Were this country shut from the rest of the world, the present equipment of the South to meet the needs of the nation would not suffice, however great its reserve force. The United States are not only not isolated, but they are enlarging the borders of their business. In the plans ensuring them the position in world-trade justified by their capabilities, the South has a vital interest. By wisdom, foresight and energy it will advance as those plans are accomplished, until is attained the goal where a Southern city will be the clearing-house for vast operations in Southern manufacturing, agriculture and commerce.

This is the magnificent prize offered. Laying aside every weight and the evil that doth so easily beset it, and running with patience the race that is set before it, the South, robust and masterful, will win its own.

DESTINY OF THE SOUTH REVEALED IN ITS RESOURCES.

By Col. J. B. Killebrew of Tennessee.

Under Anglo-Saxon domination, with a stable government, liberal and just laws in the protection of property rights, the Southern States are destined to enjoy a prosperity more splendid than has ever been vouchsafed to any other people, ancient or modern. The astonishing richness of its resources, its situation with respect to the commerce of the world, the marvelous fruitfulness and versatility of its soils, the character, extent and variety of its minerals, the amplitude and value of its forests, the healthfulness of its climate, and, above all, the virile strength, the intelligence, the quenchless energy and high courage of its dominant race, with its love of freedom and its executive ability, are factors in the future growth of the South that no other country in any age has ever brought to bear upon human energy. Taking the most conservative view of its resources, it will be seen that in these great material agencies for the creation of wealth it is not only promising, but matchless. The most powerful material factors acting simultaneously and in co-operation that are known for building up a durable prosperity for any country may be thus summarized:

1. The ability to feed the population.
2. The capacity of the soil for a diversified agriculture.
3. The manufacture of cotton and wool.
4. Large deposits of coal, the generator of the great power of steam that moves the world.
5. The ability to make cheap iron, which is both the meter and motor and the basis of civilization.
6. Natural and acquired facilities for reaching the markets of the world.
1. In regard to the first proposition, the South is fast reaching that condition in which it will not only be able to feed its own population, but with ready markets it will soon ship large quantities of breadstuffs to meet the requirements of foreign nations. Within the past ten years the production of wheat has increased 54 per cent. The increase in the production of corn far outstrips the increase in the population. The number of swine for the South has increased so rapidly that though in 1890 it produced only 28 per cent. of that produced in the United States, in 1898 it produced 47 per cent. While this rapid increase in the food crops
3. The low price of cotton is not without its compensations. It is causing the planters to engage in wheat farming, to grow more corn and to make more meat. Nay, the low price of cotton is stimulating its manufacture to a degree that was almost inconceivable twenty years ago. The cotton mills in the South in 1894 used 720,000 bales. Today the cotton mills require 1,400,000, which is more than half the amount taken by Northern mills. And this great industry is hardly begun. Its rapid increase has astonished the cotton-manufacturing world, and in many countries is producing consternation. In 1880 the South had 180 cotton mills, 667,854 spindles and 14,300 looms. Recent reliable statistics show that it has at present 550 cotton mills, 4,952,092 spindles and 104,446 looms. While the number of mills has only increased within nineteen years 206 per cent., the number of spindles

within the same period has increased 641 per cent., and the number of looms 630 per cent. The mills now building have far greater capacity and better equipment than those that were in operation in 1880. At that time the average number of spindles to the mill was 3771; in 1899 the average number is 9000. But this is not the most encouraging feature. In the six years ending September, 1899, the number of mills and spindles have doubled, as well as the consumption of cotton in the South, thus showing an accelerated movement.

In regard to the manufacture of wool, the South had in operation in 1898 104 woolen mills, and the profits of wool manufacturing are as great or greater than those arising from the manufacture of cotton. The finest blankets now made in the United States come from North Carolina. The finest wool may be produced in the South almost as cheaply as cotton, and the outlook for the manufacture of woolen goods is bright with the most pleasing prospects. The South is destined to lead the world in the manufacture of cotton goods, and it may be in the quality of its woolen fabrics.

4. The production of coal has kept pace with the manufacture of cotton. In 1880 the South mined only 6,037,163 tons, or only 14 per cent. of the total output of bituminous coal in the United States. In 1898 the amount of bituminous coal mined in the United States was 166,592,023 tons, of which the South produced 38,785,130 tons, or 24 per cent. of the whole. The South has a workable coal field that covers 47,000 square miles, and its development up to the present time scarcely reaches 1000 square miles. What a world of wealth for future generations!

5. It has been known for thirty years that the South can make pig iron cheaper than it can be made in any other portion of the globe. This is because of the proximity of all the materials that enter into the production of iron and the cheapness with which they may be assembled. The South is now dictating the prices of foundry pig iron in every part of Europe and America. Within the past four years the manufacture of steel by the basic process has made great advances in the United States. This puts the iron ores of the South on an equality with the best ores of the Lake Superior region. The Hon. Abram S. Hewitt, than whom there is no better prognosticator of the future of iron and steel, recently declared that the extensive deposits of iron ores in the South containing high phosphorus constitute a natural foundation upon which to build up the manufacture of basic steel. He thinks it safe to predict that the main supply of basic steel will in the next quarter of a century be derived from the States south of the Potomac river. "Nowhere else in the world," he says, "can the production of basic steel be established on a large scale so economically as in the South."

Iron and steel makers now agree that Bessemer steel must yield its place to the higher and stronger grades of basic steel. The steel of the South made by this process will outrank the weaker metal made by the Bessemer process. This will place the South within twenty years in the front rank of the steel-producing countries of the world. Nothing could be more encouraging than the rapid advance the South has made in iron-making since the civil war. In 1868 it produced only 100,000 tons; in 1872 232,271 tons; ten years thereafter the production reached 577,275 tons, and in 1898 it was 2,083,726 tons. For 1899 not less than 2,500,000 tons will be the output of Southern furnaces. This is over tenfold what it was in 1872, and about five times what it was

in 1882. Nearly every ton of this iron can be converted into basic steel by the open-hearth process. In 1893 the production of basic steel in the United States was only 737,800 tons; in 1898 2,230,292 tons, an increase of over threefold in five years. In the meantime the production of Bessemer steel was not doubled. This shows a strong movement in favor of basic steel. The development of the iron industry of the South is one of the brightest chapters in the industrial history of America. It now makes more iron than Great Britain did in 1847, and more than the United States made in 1871. All this has been done without government patronage and without the extraordinary advantages possessed by the Northern furnaces in having large markets at their doors. The splendid and proud position it has won has been by the indomitable energy and business sagacity of its own ironmasters. The outlook for Southern iron in the future is still brighter. Already there is a growing demand for it from every country in Europe, from South Africa and China, Japan and Australia. Wherever civilization erects its standard, whether among the coral islands of the South seas, where the perfume of perennial flowers fills the air with a cloying sweetness, or in the frigid regions, where winter reigns and clothes with an icy mantle the surface of the earth, or in the temperate zone of Europe, Asia and Africa, in sunny India and in frozen Finland, Southern iron finds a profitable market. And this is but half.

6. When commerce shall compel the two greatest oceans on the globe to wed by piercing with a ship canal the narrow isthmus that now divides them, no other country will have the tide of commerce to swell to such grand heights as the South. Her wide coal fields, her inexhaustible beds of iron ore in nine States of every variety, her vast deposits of salt and marble, her wealth of timber surpassing in quantity that of every other country in Europe or America except Canada and Russia, her limitless beds of phosphate that will gladden with a new joy the exhausted fields of every country—these will give profitable employment to a vast population and the most varied commerce to the world. And then her millions of bales of cotton that will go out, not in its raw state, but in manufactured forms, to all the countries washed by the waves of the Pacific, Atlantic and Indian oceans, to clothe the inhabitants of the Orient and the Occident, will be a source of wealth undreamed of by the most flourishing people in all past history. Southern tobacco borne on the speedy wings of commerce will soothe the temper or stimulate the action or regale the senses of millions of people who now employ a weak substitute for it.

The Mississippi, with its tributaries reaching into the most fruitful of all cotton-growing regions, and far up into the Dakota lands, where the bread grains flourish in greatest quantity, will be burdened with a weight of produce it has never yet known. The Tombigbee and the Alabama with the Warrior will bear to the great central sea of commerce millions of tons of cotton, coal, iron and timber to be distributed to the ends of the earth. Within twenty years the railroad systems of the South will be multiplied and extended many fold and the facilities for reaching the seaboard and for moving inland traffic unsurpassed. And somewhere on the borders of the Gulf of Mexico or on the banks of some estuary that leads into the Gulf will be built a commercial city that will be to the modern world what Rome and Venice and Carthage were to the ancient world. From it will go forth the most varied and the

most valuable products, mineral, vegetable and manufactured, to all parts of the earth to bring returns for the enrichment and glory of the Southern States.

Baltimore stands at the gateway between the Atlantic cities of the North and those of the South. Into her lap will be poured a large part of the wealth of both sections. Her inland traffic and foreign commerce, her manufacturing industries and financial strength and great institutions of learning will make her a city of great opulence and of metropolitan proportions, and it is not at all unlikely that in twenty years her population will equal that of New York city at the present time. Already Baltimore is reaching out with her capital to all parts of the South. Her investments are found in every growing city. The influence and power of her name are shaping the course of many commercial and manufacturing centers. Her greatness, by reason of her admirable situation, is assured, for she is destined to be the northern emporium of the South, the center of manufacturing industry for that section and the beacon light to attract and guide commerce from every nation of Europe to Southern shores. In view of her magnificent prospects and possibilities, she deserves to be christened "Baltimore, the blessed and the beneficent."

Before a child born today shall have reached his majority the population of the fourteen Southern States will, in all probability, number 35,000,000. At the present rate of increase in the production of iron the South will then be making over 5,000,000 tons of steel and iron, but it will go out in a manufactured form or as steel plates to armor, in great part, the navies of the world. Her coal product has increased 42 per cent. since 1880. If this rate of increase could be maintained the output of Southern coal in 1920 would surpass the present output in the United States without any extra demand that may be created in building the Nicaragua canal.

The consummation of that great project, opening wide and expanding markets for coal, will probably swell the output of Southern mines by that time to 300,000,000 tons. The present production of cotton, nine-tenths of which is shipped in a raw condition to be manufactured by the population of other States and countries, will, with the exception of the present requirements of the North, all be manufactured in the South if the present rate of increase in cotton manufacturing continues. In ten years the consumption in Southern mills has grown from 546,894 to 1,399,399 bales, which is an increase of 156 per cent. At the same rate of increase the consumption in 1909 should be 3,582,461 bales, and in 1919 8,171,100 bales. But there is not only an increase

in the consumption of cotton, but an accelerating increase. For the five years from 1890 and 1894, both inclusive, the increase in consumption was 42 per cent.; for the five years from 1894 to 1898 the increase was 62 per cent. The outlook now is that within the next five years the increase in the consumption will be 100 per cent. At this accelerating ratio of increase in the consumption of cotton by the cotton factories of the South, less than thirteen years will be required for the South to consume as much cotton as is now grown throughout that section.

Who is wise enough to say that this is an overestimate? Who can predict any reduction in the present rate of consumption of cotton in the South while the cotton mills are showing year by year increased earnings; while the coal output for the making of steam grows pari passu with the growth of manufactures; while numerous grand water-powers are yet unharvested and idle; while the art of living remains as cheap as it is in the South; while the climate remains so healthful, and while the markets for cotton goods continue to expand? Who shall mark the limit of the growth of Southern industries when the world is drawing a large part of its raw material from the South? Who can foretell the force of the impulse that will be given to every form of human industry in a land where every advantage presents itself? Who can stay this impulse and stop this progression in the march of destiny but the people themselves?

With the race problem settled there is nothing for the Southern people to fear in the future. Their mission should be to fill the South with a population of industrious, frugal, intelligent men and women, and make it the home of every possible industry. The desert places should be reclaimed. The banks of its beautiful streams, the gloom of its mines, the depths of its forests, the heights of its mountains should all be made glad with the hum of busy life. Agriculture in all its branches, manufactures in all their diversified forms and the agencies of transportation should move together hand in hand, mutually sustaining each other, and upon them, as foundation stones, should be erected institutions of learning to train statesmen and to foster literature, the most imperishable glories of any country. In these institutions virtue and intelligence, law and order, science with practice, patriotism without prejudice should be inculcated into the minds and hearts, the souls and consciences of that vast army of workers which is to come hereafter.

J. B. Reebrew

CHANGES IN TWENTY YEARS.

By Frank Hammond of South Carolina.

I take great pleasure in answering your query "What of the future," and I know of no better way in which to forecast the future than by a careful study of the past.

I am sure the section in which I live is little different from the many progressive and thrifty communities in other Southern States, differing, if it does, only in local color, the main results being about the same.

Looking back over a period of some twenty years I see marvelous developments, and should the next twenty years keep pace with the past, and I see no reason why it should not, then the future will show results entirely satisfactory.

Twenty years ago there were one pas-

senger train and one freight train a day each way in and out of this town of then 3500 people, now 15,000. Today there are fifteen passenger trains a day, with a service equal to any in the world, while the freight trains are too many to count, bringing goods from the Eastern markets in five days. And right here I want to say a word of just praise for the Southern Railway. It has, under the management of Samuel Spencer, become a real developer of the section of country through which it runs. It has made the interest of the people its interest, and so thoroughly has this been done that staunch friends are always ready to come to its defense against any attempted unfriendly

legislation, so far as this State is concerned.

Twenty years ago, with "warned out" hands, a dozen men and boys made a farce of working the public roads, that wound over the steepest parts of the hills and across long mirey bottoms. Today, with convicts and the best road-making machinery that money can buy, engineers have laid out new roads around these hills and filled up the crossings over creeks.

Twenty years ago this whole section had but one bank, which, with limited capital, could only lend a few, compelling many farmers to buy of the "time merchants" at 40 to 60 per cent. profit, ending frequently in wiping out the man who attempted to farm that way. Today there are within the same radius some ten banks, with ample capital for all legitimate demands, furnishing to these farmers who paid then 40 to 60 per cent. money at current rates of interest, enabling them to pay cash for their purchases.

Twenty years ago our manufactures were confined to a few saw mills and cotton gins. Today from the summit of Paris mountain, within a few miles of the city, I can see the smoke from a score of cotton mills, the net profits of which for this year alone were over \$1,000,000, giving work and happy homes to nearly 20,000 people, sending their products across the seas and in competition with the whole world.

Twenty years ago those who were so fortunately situated located their cotton gins over running streams, in order that they might not be bothered to get the worthless seed out of the way. Today in this community there are some twenty mills that have taken these worthless seed and extracted therefrom dividends ranging from 20 to 45 per cent. on a total approximate investment of nearly \$250,000.

Twenty years ago there were no city or county public schools worthy of the name.

Today there are city schools whose buildings are a credit to any people, and whose organization and efficiency are second to none, while in the country there is hardly a mile without its neat schoolhouse and its capable teacher with a session of four to six months.

Twenty years ago there were a few flour and corn mills, with their rocks and burr stones, making a miserable grade of flour from the few little turns of wheat brought across a lean pony's back. Today in this same section there are modern roller mills, whose aggregate capacity is perhaps 750,000 bushels a year.

These are a few of the most important changes that have come to us in the past decade.

They have been made not under favorable circumstances, but under conditions that, looking back now, would seem to have made these achievements impossible. They were made when two sections that ought to have stood together stood ready to cut each other's throats; when it was not thought safe to travel in the South, much less to make investments. Today these are all changed. The North and the South are together, fighting under the same flag. The richer East has awakened to the vast possibilities of the rich empire south of the Mason and Dixon line, and capital is seeking investment in every legitimate channel, earning dividends and becoming more and more interested in the welfare of the section where these returns are made.

With these changed conditions it seems to me that the future is indeed most promising. There ought to be, and will be, more substantial progress in the next twenty years than there has been in the past. It is a good land to live in, and many will find it so.

Greenville, S. C.

Frank H. Hammond

THE FUTURE OF COTTON PRODUCTION.

By Hon. Charles W. Dabney of Tennessee.

The chief facts with regard to the past history of cotton in the South are familiar to all. Few people appreciate, however, the vast importance of this crop and its value to the United States and the world. The American crop this year will probably reach 9,000,000 bales, worth nearly \$300,000,000, of which amount nearly 70 per cent. will be exported and bring some \$210,000,000. The cotton produced in America in the last hundred years has been worth at the average price of each year in gold about \$15,000,000,000. The 82,000,000,000 pounds exported from this country during the last hundred years was worth about \$11,000,000,000. These figures are almost beyond comprehension.

The effect of cotton upon the commercial and social relations of mankind is, however, too far-reaching for estimation in dollars and cents. By reason of its many excellencies and its cheapness, cotton has become the favorite fiber for the clothing of all races and conditions of men in all parts of the world. Of the four great staples that provide men with clothing—cotton, wool, flax and silk—cotton is rapidly superseding its rivals among all peoples. The demand for it is steadily growing with civilization. Fifty years ago only about 2,500,000 bales of cotton, less than the present annual production of the State of Texas, were annually converted into clothing. The spindles of the world now use nearly 14,000,000 bales per annum.

Soil and climatic conditions restrict the cultivation of cotton to a group of States in the southern portion of America, con-

stituting less than one-fourth of the total area of the United States. Yet these States grow over 60 per cent. of all the cotton consumed in the world. The total value of the annual crop is exceeded among the cultivated crops of the United States only by Indian corn, which is grown in every State in the Union, and about one year in four by wheat, which is grown in almost every State. Its production not only engages almost exclusively 7,000,000 of our people, but its handling for domestic and foreign markets and manufacture employ the capital or labor of several millions more. It is within the truth to say that 6,000,000 or 7,000,000 of people in these United States make their living out of cotton. Our interest in it is therefore a very great one, and it concerns us deeply to learn what we can about its future.

The future of cotton will be determined by the inexorable laws of supply and demand. We are not able to predict very much about the demand for cotton, further than that it is sure to grow with civilization and the progress of the arts. According to Mr. Edward Atkinson, less than half of the people of the world are supplied with cotton goods made by modern machinery. It will require an annual crop of about 45,000,000 bales to raise the world's standard of consumption of the best civilized nation. It is fair to assume that all of the fibers of the world have been pretty well tested as to their capabilities and uses. We must conclude, therefore, that cotton, which is now the preferred fiber, and is growing steadily in

the favor of civilized man, will continue to be used by him in increasing amounts. If science teaches us anything, it is that the uses of cotton will multiply rather than diminish. We are constantly finding new uses for it, such as those in gun-cotton and celluloid. Doubtless many others will be found as science progresses and the wants of man increase. From the increases in the demand for cotton in the last twenty years, it is safe to predict that the world will in 1920 want at least 30,000,000 bales to supply its wants; provided, of course, that the price does not exceed the present ruling prices, say seven or eight cents a pound.

The chief question to be considered here is, What is the prospect of our being able to supply this demand at this price? Are the natural conditions for doing so present with us? Is it likely that we can make a profit on this amount of cotton at this price? These are vital questions to the Southern States. An attempt will be made to answer them in this paper.

In the first place, have we the natural resources to supply this demand? The chief natural condition is climate. The secondary one is soil.

Experience has shown us that cotton is limited by climatic conditions to that portion of our country south of latitude 37°. The essential features of the climate in this section are the long warm season and the peculiar distribution of the rainfall. Cotton is a sun plant. Statistics show that fluctuations in yield per acre in a given section are less in the case of cotton than in almost any other product of the soil. In other words, as a general rule, a certain amount of sunlight produces a certain amount of cotton. This may be due to the greater uniformity of all the climatic conditions obtaining in the cotton belt; but the determining condition as between different sections of our country is the amount of light and heat distributed over the required number of months. We ordinarily measure this period by the date of the last killing frost in the spring and of the earliest frost in the fall. Cotton-picking may be extended far into the winter, but the first killing frost stops the active growth of the plant, and by killing the blossoms and young bolls puts an end to the production of cotton for that season. The crop requires from six to seven months of favorable growing weather for its development. The distribution of the rainfall is also important. Cotton thrives in a warm atmosphere, even a very hot one, provided it is moist and the transpiration does not overtax the leaves of the plant. The plant requires an abundant supply of moisture during the growing stage. A rainfall increasing from the spring to the middle of summer and then decreasing to autumn is probably the most favorable condition for the production of this crop. These are exactly the conditions that prevail in the cotton States.

Cotton grows more or less successfully on nearly all kinds of soil within this climatic belt. Light sandy soils, loams, heavy clays and sandy "bottom lands" will all grow it, though not with equal success. Sandy uplands produce a short stalk, which fruits fairly well. Clay lands grow a plant of large size, yielding less lint in proportion. This is also the case with bottom lands. The best soils for cotton are the medium grades of loam.

The cotton soil should be of a quality to maintain very uniform conditions of moisture. Sudden variations in the amount of water supplied injure the plant decidedly. During the early stages the soil should be moist all the time. A sandy soil does not retain the water; a clay soil maintains too much moisture and causes the plant to take on too rank a growth. The best soil for cotton, therefore, is a

deep, well-drained loam. Hilgard considers the "buckshot" soil of Louisiana, a deep sandy loam, with large moisture capacity, the ideal cotton soil. It produces two bales to the acre. Cotton is successfully grown in the South on nearly all kinds of soils, from the piney ridge soils of North Carolina to the rich bottom soils on the Mississippi.

The cotton-growing region of this country measures over 550,000 square miles, which is about one-third of the total settled area of the United States. In 1890 over 50 per cent. of this was in farms, and over 20 per cent. was improved, but be it noted that only about 5 per cent. of the total area, or one-tenth of the area in farms, and one-fourth of the area of improved land, is now annually cultivated in cotton. Now, the present methods of cultivation require, roughly speaking, about two and one-half acres to produce one 400-pound bale. The area now in farms in this section would, then, if all cultivated in cotton, produce over 80,000,000 bales. So far, therefore, as climatic conditions are concerned, the Southern States could produce eight times as much cotton as they did this year without taking in any more land. Since there are no extensive deserts, large swamps or unconquerable wildernesses in these States, it will evidently be entirely feasible, when more farming lands are required, to bring a large portion of the remaining area of 450,000 square miles under cultivation. If we limit cotton to the medium loam soils and sandy bottoms, this acreage will be cut down a good deal; but a study of the geological map of the South leads us to the conclusion that there are at least 700,000 square miles in the cotton belt covered with soils suitable for cotton culture. This means that with the proper demand and the other conditions supplied, we have cotton soils in the South enough to make, at the present rate of production per acre, which is a very low one, at least 100,000,000 bales, or three times as much as the whole world is likely to consume in 1920.

But soil and climate are not the only conditions. It requires labor, chiefly the labor of mules and men, to make a cotton crop. The question of animal power is not a very serious one. Animals could be raised in a very few years if the demand existed and steam or electric plows and cultivators do not displace them. The returns to the United States Department of Agriculture show that there are enough horses and mules at present on the farms in the cotton States to make a crop of 50,000,000 bales.

A more important question is the one of labor. Major Harry Hammond, expert in cotton culture in the United States Department of Agriculture, reckons that the labor used in the production of cotton is 54 per cent. of the total expense of growing the crop. This is a much higher ratio of the cost of labor than is found in most other industries. It exceeds the cost of labor in corn and wheat growing, and also the cost of labor in many manufacturing industries. The average cost of labor employed, for example, in the cotton mills reporting to the national department of labor is only 28 per cent.

The number of bales of cotton per 100 of population in the entire cotton section was, in 1880, fifty; in 1890, fifty-three; or, to express it in another way, the people in the cotton belt produced in 1890 254 pounds of cotton per capita, as against 231 pounds in 1880. In the State of Mississippi, where conditions are most favorable, the amount produced per capita of the total population was 427 pounds in 1889. For the South as a whole, therefore, with its present population and under its present conditions, we have a right to expect a yield of 300 pounds per

capita of the total population. At the recent rate of increase, it is fair to suppose that the population of the cotton States is now about 15,000,000. We have no data from which to calculate the total possible production of this population under the influence of increased demand, but it is evident that there is great room for improvement in methods of cultivation and fertilization, as well as in labor, and that this vast population could easily produce a far larger crop.

The history of cotton production also teaches us that the amount produced in the South is dependent only upon the demand for it. We had a striking illustration of this between 1886 and 1892, when the increased demand caused an increase in production of over 40 per cent. In fact, the resources of cotton-planters are so very ample that they are extremely liable to overproduction. For several years they have been using every form of organization to restrict the production of cotton. It is difficult, however, to restrict nature, and more difficult to restrict human nature.

We have supposed so far that the cotton-planter in the South may keep on growing his crop under the existing rather shiftless methods. What the result would be if cotton-planters cultivated only the best soil and used intensive methods it is very difficult to estimate. The better cotton-planters are already reducing the acreage and improving their methods, thereby lessening the cost of the crop. Improved methods are surely in due time to become known to the great majority and to be adopted by many of them. It is generally agreed among cotton-growers that the last three crops produced were the cheapest ever made. To a considerable extent intensive cultivation has already taken the place of extensive cultivation in the hill country of the Atlantic States. This was most forcibly illustrated when the census statistics of cotton were taken up in 1889. The great production reported from South Carolina was totally discredited when first heard from. Statisticians did not hesitate to affirm that South Carolina could not have made the amount of cotton reported. But careful investigation proved the correctness of the figures and made manifest the fact that the unprecedented production was due in large measure to the improvements in cultivation. Cases where 500 pounds of cotton were raised to the acre were found to be numerous; an average of 700 pounds was by no means uncommon, while some of the best farms produced as high as 1000 pounds per acre. It is firmly believed that the census to be taken next year will reveal a greatly-improved condition of things.

Agriculture in the South is becoming more and more diversified. The farmer who made cotton only and undertook to make enough of it to pay for everything else has gone into bankruptcy, and has been succeeded by a wiser man. The planter who kept his corn crib in Cincinnati and his smokehouses in Chicago has failed. The younger generation is putting more acres in corn and growing better cotton on fewer acres.

It concerns us much more to ascertain, however, what our future profit from the production of cotton is likely to be. The demand for cotton at the present figure, say seven or eight cents per pound, will certainly grow steadily. We have found that the South can easily produce all the cotton that is likely to be demanded in the next twenty years, or even the next fifty, for clothing the entire world. It interests us much more to consider how to get the greatest profit out of it.

The recent report of the United States

Department of Agriculture* gives the result of a careful inquiry made into the cost of producing cotton in each State and Territory of the United States. The average total cost of cultivation per acre on 3335 upland cotton plantations was \$15.42, and the average total return of lint and seed was \$19.03, giving an average net profit of only \$3.61 per acre. Eighty per cent. of the plantations show a profit and 20 per cent. a loss. This is not very encouraging. If this is all we can get out of it, had we not better quit growing cotton altogether? An analysis, however, of the methods pursued on the different plantations reporting gives us great hope. It is easy to see from this report why it is that the profits of the cotton-planter are not greater. Where the white man cultivates his own crop, limits it to the best land, uses a proper rotation, with a reasonable amount of fertilizers, the profit is always a good one. Where the work is carried out by the negro tenant, undirected by the white owner, the profit is a very small one, except in the Mississippi valley and the rich bottoms of Texas.

If it is true that cotton is likely never to exceed eight cents again, the important question for us is, Can the cost of raising cotton be reduced? The average cost of cultivating an acre of cotton is \$15.42, and the average cost of making a pound of lint is 5.27 cents. Is it possible by improved methods of cultivation, by cheaper fertilization, or by any change of farm economy to reduce this cost? The methods to be used may be grouped under the following heads:

First, we must adopt an intensive method of cultivation. More attention should be paid to the selection of seed for planting. Fewer acres should be put in, and they should be selected with reference to their fertility. This is the only practicable way to induce cotton-planters to reduce their acreage. A rotation of crops must be introduced, and lands must be improved by growing cowpeas and legumes generally. Cheap fertilizers may occasionally be used to supplement the home-made manures.

No agricultural plant responds more promptly and generously to a liberal fertilization than does cotton. Co-operative experiments conducted by the experiment stations on hundreds of farms in the South have shown us that the application of about sixty pounds of nitrogen, twenty pounds of potash and twenty pounds of phosphoric acid in a suitable form made on fair average lands containing a reasonable amount of humus, such, for example, as would without this produce 250 pounds of lint per acre, will usually double this crop. Cottonseed meal, the superphosphates made from Southern phosphate rock and the cheap potash salts, imported from Germany, produce a fertilizer containing the above amounts of nitrogen, potash and phosphoric acid, which can be laid down upon the farm for about \$5 per acre. Careful investigation of the cost of producing cotton shows that this is the most profitable fertilization for this crop. This means that by an expenditure of \$5 per acre a planter could make land that without it would produce only 250 pounds of lint yield him a good season a bale of 500 pounds, worth, at seven cents, \$35. The additional expenditure of \$5 will thus return \$17.50. The remarkable fact here is that the cotton plant itself produces the most valuable portion of this mixture, namely, cottonseed meal. By growing cowpeas and feeding them Southern farmers are greatly improving their soils while they make the beef, milk and butter that the South so much needs.

*Division of Statistics, Miscellaneous Series No. 16.

Such methods are being introduced throughout the cotton country, and this means that the production per acre is going to be greatly increased. It will be in this way rather than through the increase in acreage that the South will be able to supply all the demands made upon it for cotton.

Secondly, the cotton-planter must grow his own supplies at home and make his farm self-sustaining. Merchants are still advancing large quantities of food to cotton-growers, the greater portion of which could be made at home. Every acre used in making supplies will reduce the acreage in cotton. I surmise that when planter, tenant and stock are all fed from the products of the plantation, the acreage still left in cotton will not be too great and the cost of growing the product will be reduced to a point at which the cotton-planter can see a good profit.

Thirdly, there is great room for improvement in our labor system. As shown above, labor is the most expensive item connected with cotton culture. Over 54 per cent. of the total expense of cotton culture is paid to the laborer for plowing, seeding, scattering, fertilizers, chopping out, hoeing and picking. It is evident, therefore, that any great reduction in the cost of making cotton will depend upon a reduction in labor. There is very little room for a reduction anywhere else. The fact that one-fourth of the total crop is probably made by share croppers, mostly negroes, relieves the situation somewhat. What we want is more efficient labor in the cotton fields. The value of negroes

on our modern cotton plantations has depreciated very greatly since the emancipation. A good authority states that the best negro labor trained under the old methods is only worth now about 50 per cent. of what it was in slave times; the younger negro men who have grown up since the civil war are worth only about 30 per cent., while the colored females are worth only about 20 per cent. of what they were worth under the slave system. What is needed above all things to reduce the cost of cotton production is intelligent direction and control of labor, and such discipline as will exact of the laborer his undivided attention to the cultivation of the crops and the maintenance of the fertility of the soil.

Such improvements as these—intensive cultivation of a limited acreage, the growing of supplies at home, and better organization and direction of the labor used in the cotton fields—we may confidently expect to reduce the cost of cotton production so as to secure a better profit even at seven or eight cents a pound. The writer believes that this is the tendency of all the changes now going on, and that the Southern cotton-planter is going to get his profit in this way, and not by any artificial measures taken to reduce the acreage.

Charles Hargrove

WHEN THE SOUTH CONTROLS THE COTTON SPINDLES.

By H. H. Hargrove of Louisiana.

The South, like all other sections, to enjoy wealth should manufacture its raw material for the profit therein to the shareholder in the plant, to give employment to its laboring classes, but it should be done as well for a more important and altruistic reason than private profit. It should be done to produce domestic wealth, local circulating cash and in self-defense to the industry and the people and for community commercial independence.

It is well to state here that the two leading elements of productive wealth in the United States, agriculture and manufacture, bear the ratio of 28 per cent. for agriculture to 52 per cent. for manufacturing, teaching the agricultural South that her prosperity will be greatly enhanced by a general system of manufacturing its raw material on its native heath.

There was a time when agricultural wealth surpassed all other wealth, as prior to the civil war agricultural Louisiana enjoyed a per capita wealth greater than any other State, while now the manufacturing center of the United States, Massachusetts, represents a per capita wealth nearly \$5 to \$1 in Louisiana. This is a wonderful change to have been wrought in a period of thirty years.

The soil of Louisiana is not less fertile now than then, but the value of the manufacturing industry is the magic which produced this extraordinary change in the wealth of the two localities. The wealth of the Eastern States is the product of manufacturing, and is of comparative brief history, as by an examination it will be found that the capital invested in manufacturing in the United States in 1850 was only \$750,000,000. At the outbreak of the civil war this capital had grown to be \$1,000,000,000; in 1870 there were \$2,750,000,000. This shows that from 1850 to 1860 a growth of 33 per cent., but from 1860 to 1870, a war period, there

was an increase of 75 per cent. in capital engaged in manufacturing industries. From 1870 to 1880 there was the large increase of \$1,000,000,000, while during the next ten years the capital increased to the enormous sum of \$6,250,000,000, which was over 100 per cent. increase. Since 1890 there is no complete and reliable data, but the increase has been stupendous. The gigantic industrial capital of America will doubtless in 1900 pass the point where ordinary business experience can comprehend it. But machinery is doing man's work in the close of the present century, and machinery costs money.

The South must learn to manufacture her entire raw material. It should be from a purely business standpoint, and be the result of a great movement rather than a spasmodic and undirected effort.

The West manufactures its corn and wheat—one into meat and the other into flour. California cans and preserves a large share of its fruit. Louisiana prepares for use her sugar and rice.

The cotton-growing States of the two Carolinas, Georgia, Alabama, Mississippi, Louisiana, Arkansas and Texas are sustained to a large extent agriculturally by 2,500,000 people growing cotton practically in all corners of these States. Thus the welfare of one is the wealth of all.

Agriculture being the base of wealth in the greater portion of the South, that which affects the farmers unquestionably affects the merchant, banker, the press, the professional man, and, in fact, everybody. The farmers in 1898 received \$100,000,000 less for their staple cash crop than they did ten years prior, and hence their loss was my loss, your loss, in fact, everybody's loss.

The South's staple raw material consists of coal, iron ore, cotton, timber, cattle, cane and rice, all of which produce wealth through domestic and foreign export sale. There are other allied raw ma-

terials, such as corn, hay, dairying, fruits, minor minerals, poultry, hides, which, combined, are essential elements of wealth, on which, however, no large section of the South rests its claim for a living.

Therefore the staple raw materials—coal, cotton and timber—should be the basis for launching a campaign in behalf of prosperity in the South. While coal, iron ore, cane and rice are the products of limited localities, timber and cotton are neighbors to nearly every home in the South, and can be easily made a part of its prosperity. The South contains 60 per cent. of the timber, 35 per cent. of the coal area, and grows all of the cotton of the United States. Stagnate these three commodities, and you affect every section of North Carolina, South Carolina, Georgia, Alabama, Mississippi, Louisiana, Arkansas and Texas. Give prosperity to these articles of daily needs of the world, and you furnish a shuttle which carries a golden harvest to every man who has something to sell to his fellows.

Timber is used in many ways, while cotton goods are a daily necessity in all conditions of society and in all sections, and hence is practically of universal use in all civilized communities, and is therefore a great factor in comfort and wealth. It is the great and prime factor of wealth in the South, and deserves intelligent consideration and business study at the hands of the South's brainiest sons. A panoramic view of the situation during the past thirty years will be helpful to understand the present condition of the cotton-growing industry. This will include the growth of the cotton crop and the annual spinning capacity and the decline in the price of that staple.

There are 1,500,000,000 people in the world, of whom possibly 7,000,000 are financially interested some way in the growing, handling and manufacturing of cotton, and possibly 8,000,000 in its sale, and thus we have remaining 99 per cent. of the human family who are possible customers in the consumption of cotton in a manufactured state.

Story of Cotton Development.

In 1866, when the people of the eight cotton-growing States of the Carolinas, Georgia, Alabama, Mississippi, Louisiana, Texas and Arkansas began the work of rebuilding their shattered fortunes, the American cotton crop amounted to 2,007,254 bales of 444 pounds each, selling for 31½ cents per pound, with an aggregate value in New York, supposing all to be middling, of \$193,322,944.44. In 1870 there were 4,352,317 bales grown, weighing an average of 442 pounds each, having a value of \$74.91 per bale, or 16.95 cents per pound for middling, and if all had been middling at New York, an aggregate value of \$326,032,066.47. In 1880 the crop had grown to be 6,605,750 bales of 460 pounds each, when it was worth \$52.16 per bale, or 11.34 cents per pound, and in the aggregate \$344,555,920. Here we have in a 13-year period over 300 per cent. increase in the number of bales, but more than 333 per cent. in actual number of pounds, and such a decrease in price as to yield but a fraction greater than one-third per pound, with a net cash result varying in the last ten years only \$18,523,854. In 1890 the Southern cotton crop was 8,652,597 bales of 473 pounds, worth 9.03 cents per pound, or \$42.66 per bale, or a total of \$369,118,787.02.

The aggregate value of the two crops, twenty years apart, varied \$43,086,720.55, though the yield had been 100 per cent. increase in weight. In fact, the net cash returns to the South were in 1890 but little in excess of 1880, as the aggregate of value for the years was based on New York export quotations, which is three-quarters of a cent higher than the farmer

received for his cotton at home. Thus, instead of the crop of 1880 yielding the South \$344,555,920, we would deduct three-quarters of a cent from New York prices, or \$3.40 per bale, which would be less in the aggregate by \$22,459,750, giving the South in cash \$322,096,170. Instead of the South receiving in 1890 the aggregate of \$369,118,787, we would have to deduct at least three-quarters of a cent per pound, or \$3.55 a bale, or \$22,716,719, netting the South in cash \$346,402,068.

After 1890 the price of middling cotton was never equal to 10 cents, but continued downward until it sold on interior markets at 5 cents. In 1892 middling at New York was worth 8.24; in 1893 it was worth 7.67; in 1894 it was 6.50, and in 1895 it was 8.16; in 1896 it reached to 7.72, and in 1897 it averages 7.4 cents per pound; that year was its last paying year.

When it was quoted in New York September 1, 1898, at 5½ cents, with an average on the Southern home market of 5 cents for middling, and about 4 cents for the bulk of the crop, our people stood aghast at the prospect of having everything they possessed swept away to pay the crop debt of that year. The crop of 1898 was 11,199,994 bales.

The 11,199,994 bales, weighing 500 pounds each, and having an average value on the home market of 4½ cents per pound, yielded the South about \$22 per bale, or an aggregate of \$246,399,868, or a sum \$100,002,200 less than the crop netted the farmers in 1890, and about \$75,696,302 less than in 1880 and \$79,632,198 less than the aggregate value of 1870, though the number of bales had increased more than 550 per cent. since 1866, and nearly 100 per cent. since 1880, and nearly 30 per cent. since 1890, but in actual weight the increase in thirty-two years was more than 600 per cent. These decreases in cash receipts were vast sums of money of which to deprive the cotton States during a series of thirty-two years. The farmers, merchants and the financiers exclaimed "What shall we do to be saved?"

The population of the South had increased from 1870 to 1890 about 100 per cent., and doubtless increased since the latter date more than 25 per cent. While its money crop in thirty-two years had increased 600 per cent. in quantity, it had decreased in aggregate cash volume about \$100,000,000 per annum, and thus it was plain that the South was not receiving a proper value for its cotton, and that a lack of competition in buying was the chief cause of this condition; hence the suggestion was made in the New Orleans Picayune of December 4, 1898, and continued by this writer as a Southern newspaper contributor in a series of articles, that the manufacture of this raw material at home and furnishing competition in buying was the only way to protect our country's commerce and replenish our exhausted cash resources. Many speakers, writers and financiers, in speaking of this condition, said it was overproduction, while others charged it against cotton exchanges as exciting undue speculation in the sale of futures, while others said it was due to a defective national money system. I contend that neither of these are the true cause, but that these downward scale of prices is inadequate competition in the spinners' purchases. In substantiation of this theory I cite the following facts:

Causes for Low Prices.

In 1875 the world had 67,940,000 spindles in operation, of which 39,000,000 were of English ownership. This practically gave 60 per cent. of the world's spinning capacity to England, which in area is not quite so large as Mississippi. In 1876 the English spindles were increased to 41,881,789, and as thus operated make

an export trade for England more than double any other article, and having a total value of \$450,000,000, of which only \$160,000,000 was for cotton, leaving \$285,000,000 for wages, dividend and current expenses on English soil. England has always purchased 65 per cent. to 68 per cent. of American crops, and thus exercises an immense influence over everything therewith connected.

In 1880 the world's supply of spindles was 72,270,000, with England still having the majority. In 1885 there were 81,145,000 spindles, of which England had 43,000,000, or more than all the balance of the world.

In 1890 there were 86,145,000 spindles, with England operating 43,750,000. England continued slightly to increase her spindles until 1895, when there were 45,400,000 English spindles in operation, against 50,094,000 for the balance of the world. Since then England went backward to 44,900,000, where it has remained for four years. It has now 45,600,000 spindles out of 98,000,000, which is practically placing half of the spinning capacity of the world in the control of a small number of very rich and prosperous firms. Of this number, 93 per cent. are within fifty miles of Manchester, which is only thirty miles from Liverpool.

There were in 1875 2655 cotton factories in Great Britain, and probably in the balance of the world an equal number, making 5310 spinning purchasers who were rich and strong, who, seeing the American cotton grow in actual weight 600 per cent. in thirty-two years, while the spindles in twenty-five years had increased less than 50 per cent., and the English spindles had not increased for five years, realized the matter of price was in their hands and fixed the price to the farmer for middling at \$22 per bale. English capital is said to be plentiful at 3½ per cent. interest, though English spinners have been earning 8 per cent. to 12 per cent., and in one instance 30 per cent., and German spinners 8 per cent. to 18 per cent.

I am unable to say how much capital is invested in foreign mills, but England in 1875 had 41,000,000 spindles and \$450,000,000 capital, about \$11 per spindle of invested capital. There are now about 80,000,000 foreign spindles, which, capitalized at \$11, would represent \$900,000,000, and if these average 10 per cent. dividends where the usual interest is only 4 per cent., then the South should receive a sum equal to at least 6 per cent. on this capital, which would yield for its cotton \$54,000,000, which it did not get in 1898. This is about \$5 per bale. By a close study of the annual crop and the well-known spinning capacity, the buyer could see that the increase in the manufacturing plant was nothing like as great as the supply of raw material, and did as any other buyer would have done, forced the large supply of raw material to hang over the market and depress it daily to a point of ruination to this section. Had there remained an active competition in buying the raw material, the South would have received 7 cents per pound, or \$35 per bale, which would have realized for the South's use about \$168,000,000 annually in excess of its cash supply, which during a period of ten years would have left among us a vast sum of money and decreased the need of manufacture at home as a means of increasing our supply of cash. But admitting that Southern cotton manufacturers would not afford competition in the purchase of cotton, it must still be conceded that 1,000,000 of the 12,000,000 Southern people could have become operatives, and that the value of the manufactured product would have reached near \$1,750,000,000 annually instead of \$246,000,000 for raw cot-

ton, and for a period of twenty years would have attained this extraordinary sum of \$35,000,000,000, or more than 50 per cent. of the assessed wealth of the United States.

It requires no seer to tell what would be the condition of the South with this great supply of ready cash. The restatement of these facts may be concreted in a few lines.

The spindles of the world had increased since 1875 about 50 per cent., but the cotton had increased in actual weight by 600 per cent. annually, and thus we have nearly 600 per cent. increase in actual production, against 50 per cent. increase power and capacity to spin and weave. Since 1890 the crop has increased in weight 30 per cent. and spindles 15 per cent. It is thus plain that we have produced our own misfortunes, not by overcrop, but by underspinning and by overcrowding the manufacturing capacity of our customers with our raw material, and in this way lost the competitive bidding for our raw cash crop. We could not coerce Old England, with 45 per cent. of the spindles, nor New England, with 13 per cent. of the world's spindles, to increase their spinning capacity and compete with themselves in increasing the price they should pay us. To manufacture the cotton at home seemed to furnish the only promise of permanent improvement.

By the South's control of the raw material, and also of a large share of the spindles, she will become independent and furnish her own circulating medium without reference to the party lines on silver or gold standard, and thus can easily set the pace for the price of raw cotton or its manufactured product.

The cotton mills operated in the South have an immense advantage over all others in cheaper supplies, which I capitalize as follows: Coal, 50 per cent.; cotton, 15 per cent.; building material, 25 to 50 per cent.; better climate and longer working period and exemption in many localities from taxation, and thus earn 20 to 40 per cent. profit annually on their capital. The enlargement of domestic wealth is at last the greatest incentive to build cotton factories in the South, and through this means help to control and regulate the price of the staple in the hands of the 2,500,000 producers, who are usually unskilled in the science of market matters and do not know how to help themselves.

The average value of the manufactured product is but little under \$2,000,000,000 annually, and this, if it was all left in the South, would prevent us from quarreling among ourselves as to which financial standard we desired. There would be plenty of money here, and we would not be contending over the ratio of the two coins, but would accept either, and we long since have paid off our debts.

New England Review.

The South Atlantic States, where mills have long been established, testify to the handsome profit to the individual stockholders in cotton manufacturing, while investigation of the same work in New England tells a grand and eloquent story of the community wealth in such industry.

It will suffice here to recall the fact that Massachusetts, devoid of any agricultural wealth or native raw material, is the richest American State per capita and per area, all of which is the product of industrial skill exercised on the raw elements of wealth imported from her sister States. She has 40 per cent. of the American spindles. Though the State is only one-seventy-fifth part the size of the cotton-growing States, her assessed wealth in 1890 was equal to that of North and South Carolina, Georgia, Alabama, Mississippi, Louisiana, Arkansas and

Texas, which grew 80 per cent. of the world's cotton, while Massachusetts manufactures nearly one-tenth of the American cotton. The raw material, of which this wealth is the product, is principally cotton, hides, coal and iron, all of which abound in superabundance in the South, and which, if fashioned into commercial products on Southern soil, would have produced even greater wealth than in the great granite State.

The State, though one-sixth the size of Louisiana, sustains thirty-two cities, having from 10,000 to 525,000 population. The skill her people possess can easily be acquired here in a comparatively short period. There can be no monopoly in skill when capacity and ambition to learn directs the effort. When Massachusetts takes the raw material of her neighbors and compounds and fashions it into a value of \$800,000,000 annually, while Louisiana, six times the size of that State, gathers from her rich soil an agricultural product, which, combined with her industrial output, only represents \$112,000,000, we should be easily schooled into the overwhelming importance of following her example.

A Comparison.

Massachusetts is unquestionably the wealthiest State per capita and per area, and has the largest manufacturing output per area and per capita in the Union, while Louisiana is the wealthiest per agricultural yield per acre, and a comparison between these two typical States will be pertinent to and illustrate and enforce the argument in behalf of manufacturing as a source of productive wealth.

In 1860 Louisiana was assessed for \$425,787,265, or about \$1225 for each citizen, which was then a white population. At that date Massachusetts was assessed for \$775,157,816, or \$630 per capita, or practically just half of that of her agricultural sister of the South. That census year shows that Massachusetts manufactured \$255,545,922 as her annual output. In 1870 Massachusetts' assessed wealth had increased to \$1,591,983,112, or about 100 per cent., while her manufacturing

output had increased to \$553,912,508, or more than 100 per cent.

In 1880 the wealth of Massachusetts was but little changed from previous census, but the manufacturing output had increased to \$631,135,284. In the census returns of 1890 Massachusetts' wealth is placed at \$2,803,645,447, practically a 100 per cent. increase in ten years. Her manufacturing output was then \$888,160,403. This gave Massachusetts a per capita assessed wealth of \$962, being the highest against the average for the United States of \$407, and Louisiana \$209.

The wealth of Louisiana in 1860 included slaves, but excluding these the State report of that year shows there was then a valuation of \$260,000,000, while in 1890, by census returns, it was only \$234,320,780, practically \$25,000,000 less than thirty years before. Its cotton crop then was under 500,000 bales of small size, while now it produces 550,000 to 750,000 bales, weighing 500 pounds. It then had no railroads; it then produced less sugar than now, and had no large amount of rice.

Louisiana in 1860 had \$2 per capita wealth to Massachusetts' \$1, but in 1890 Massachusetts had more than \$4.50 to Louisiana's \$1. Massachusetts is supported by 95 per cent. of manufacturing productive wealth, and Louisiana by agriculture. Of course, the 1890 comparison is based on both white and colored population, but exclude the colored, and Massachusetts still has \$2.25 to Louisiana's \$1.

A comparison with any other agricultural section will not improve the Southern side of the question. A day in the factory brings the operative a much greater reward than a day on the farm. It is the duty of the Southern leaders of thought to launch a business campaign for all character of manufacturing, but particularly in behalf of that staple which has supported the aristocratic South for 100 years and is now without a staunch friend in the markets of the world to maintain its prestige and supremacy.

H. H. Hammett

TEXTILES IN THE PIEDMONT REGION.

By Col. James L. Orr of South Carolina.

In an interview with a representative of the Manufacturers' Record Col. James L. Orr, president of the Piedmont Mills of Piedmont, S. C., regarding the textile industry in the Piedmont region of the South, said:

"The real beginning of cotton manufacturing in the Piedmont section of the Carolinas dates back to 1820, when William Bates, a native of Massachusetts, and who learned his trade in the old Arkwright Mills, near Providence, came to upper South Carolina at the instance of the Lesters, and finally built Lesters Factory upon the site of what is now Pelham. The machinery for this mill was bought in Philadelphia, second-hand, shipped to Charleston by water and hauled from there by wagons over 300 miles.

"Mr. Bates was a thoroughly practical man, and his influence and handiwork was felt in all the small mills, about a half-dozen in number, that during the next twenty years were built and had a more or less successful existence, such as Batesville, which is named for him, Bivingsville, Fingerville, Lesters, a mill at Greensboro and a few others.

"The progress of these mills from 1840 was slow, and at the breaking out of the civil war the Confederate government

took charge of all cotton mills and detailed officials to run them, taking a large part of their product for army purposes.

"The real beginning of cotton manufacturing as we have it now commenced with the Piedmont Mills, projected and successfully carried out by the late Col. H. P. Hammett, a son-in-law of Mr. William Bates. This mill was begun in 1873, and began the manufacture of goods in the spring of 1876. In a very few years (1882) this venture was followed by the Pelzer Mills and the Clifton Mills. These pioneer mills soon demonstrated to a very skeptical world that cotton goods could be manufactured in the South as cheap, if not cheaper, than in any other section of the United States. The Piedmont Mills have grown from a small plant of 5000 spindles to nearly 61,000 spindles; from a capital of \$200,000 to \$800,000, which is far below the value of the property.

"The market value of the stock is 185, but very little changes hands, being held for investment exclusively. Piedmont uses 32,500 bales of cotton annually, producing 39,000,000 yards of cloth, of which 75 per cent. is exported to China, Africa and South America.

"Following the signal success of these pioneer mills others were soon erected,

and in a few years South Carolina assumed the lead of all other Southern States, and has kept it, standing today second only to Massachusetts in number of spindles, and second to none in high standard of equipment, dividends and high class of products.

"While it was in all probability a mere chance that Mr. Bates began his work in this section over three-quarters of a century ago, it is certain that if he had been thoroughly informed of the varying advantages of the whole South as suited to the manufacture of cotton goods, he could not have chosen a section whose climatic, geographical and physical conditions and surroundings more ideal than this Piedmont section.

"So successful have been the ventures in cotton manufacture here, a failure is the exception; in fact, with anything like efficient management, there have been no failures. The mills begun ten to fifteen years ago have in many instances increased their capacities from four to eight times their original size, in many instances paying for a large part of these improvements out of surplus earnings of their mills and paying handsome dividends at the same time on their capital stock.

"If you were to search the world over today for the best type of cotton mills, you would find them in upper South Carolina. Their excellence extends to every essential and process of manufacture.

"For cotton, there is no better staple and fiber than that produced on the uplands of South Carolina, giving a soft, creamy finish to the cloth that is without equal and defies imitation.

"For labor, the native type, from the foothills of the Blue Ridge, quick to learn, easily managed, thrifty, frugal and honest.

"In building material, the best and the cheapest.

"In design and architecture of mills, the most effective that the skill of fifty years of the best engineering of America has evolved.

"In machinery, the most modern that any makers on this continent turn out from their workshops. There are more Draper looms in the mills of South Carolina than all New England mills combined.

"Within an area of 100 miles of these pioneer mills are in the neighborhood of

1,500,000 spindles, representing an outlay of nearly \$40,000,000. Ten per cent. dividends, and many mills make more, represents annually a net profit of \$4,000,000. All this has been done in thirty years.

"The profits in cotton manufacturing during this period has been satisfactory, varying, of course, as the conditions have been more or less satisfactory. These mills have been through as hard times as have ever been known in the history of manufacturing in the United States. They have demonstrated their ability to live through unfavorable conditions and make money. As investments they are as well tried as any business investments in the world. They have been built by a combination of Northern and Southern capital, the former being, however, limited to those immediately having business relations with the mills. Gradually it has forced its way into all the investment world that as dividend-payers there are none better, and their stocks are being sought for and command, in many cases, fancy prices. As the facts become more generally known this will grow. Farsighted New Englanders are today in the market for stock in standard Southern mills. One of these days the general public will see the desirability of these stocks as investments.

"As yet, however, we have only entered a small realm of cotton goods. Year by year, however, the number of mills are increasing that make finer numbers, some mills even now making finer goods than print cloths. The process is an evolution, but as to the future it is well to let that take care of itself. We are dealing with facts of today, and those outlined are well within the truth.

"A new field for the products of cotton mills has been opened in the Far East. Southern cotton mills have entered this field, and some brands are as well known and appreciated in China and Africa as they are at home. With this new demand the danger, if there ever was any, of over-production is remotely removed. Broadly stated, every bat of cotton that is not burned or lost at sea is manufactured. The crop is all manufactured at some point or other. If the natural advantages we possess are as good or better than other places, then we must continue to get new spindles, as well as the keeping of our old ones going."

ORGANIZATION OF COTTON MILLS.

By Cuyler Smith of Georgia.

The South is indebted to your paper for a true representation of its industrial advancement during the past, and will be more deeply in your debt in the future for keeping the eyes of the commercial world fixed on her progress as well as the means of inducing capital to turn southward for investment.

I estimate that in the past ninety days \$2,000,000 has been invested in cotton factories throughout Georgia, about one-half being expended in improvements on the mills now in operation, many of which doubled their capacity. The total value of the capital stock of the companies projected or actually formed during that period is \$1,575,000. Seventy-five per cent. of this is Georgia money, which was invested by all classes of our people, from the capitalists, city and village, the village merchants, professional men, and especially the farmers. The percentage from each class is shown in a company I recently organized: Village merchants and residents, \$16,000; farmers of the county, \$19,000; local bank, \$10,000, and Atlanta capitalists taking the balance of

the capital stock in this \$70,000 cotton factory. I have found it best to arrange the payments for stock to be made one-half down at the time of chartering and election of officers, the remainder in two payments of 25 per cent. each, fixed in about eight or twelve months. Local banks will advance the money to make the two deferred payments at a low rate of interest to good men, taking the stock as collateral for the loan. By this plan small investors can have two years in which to pay or market two crops of cotton before making final payment. This arrangement is especially advantageous to our farmers, who tell me that it is impossible to pay all their subscriptions out of one crop, and always subscribe in liberal sums where this arrangement is made. The farmers are the strongest supporters of our new enterprises, giving more in proportion to their means than any other class. They tell me that a factory in the county means a home market for their cotton, a saving of expense in marketing the bales, also giving their younger generation employment, and in the in-

creased population of the mill village they find a ready market for the products of farm, garden and dairy. I investigated this, and find that the most prosperous farmers of Georgia are those living near old factories, such as those at Trion, Athens and Augusta. For a quarter of a century these men have had a steady market for their produce and meats, actually supporting themselves and families from this trade, their cotton going to the mill as clear profit year after year. Farmers tell me that their stock is a collateral on which they can borrow money at a lower rate of interest than is attainable in any other way. Country merchants never fail to subscribe liberally to the proposed cotton factory if no commissary is added to the mill. Their experience has been that it is a good investment to put a few hundred dollars in a factory, even if it never paid a dividend, finding among the operatives an increased trade, the profits derived therefrom more than compensating them for their liberality to the factory. The strongest and most effective arguments made to people of town and country are that the cotton factory will disburse \$5000 to \$6000 a month, give employment to the younger people, afford a home market for cotton and farm products and furnish the best investment for small sums. This argument never fails to bring subscriptions.

Cotton factories pay best in those sections of Georgia in which, from geographical conditions, agriculture is not profitable. This is mainly applicable to the Piedmont section of the State, embracing a belt reaching 120 miles north and 150 miles south of Atlanta, from South Carolina to Alabama. The farms will not support the ever-increasing population, so the young whites of both sexes naturally turn to the towns and cities for work. The factory suits these people, giving them profitable, pleasant and suitable employment. The Georgia operative is recruited from the farms, and a pay-roll of one of the mills in which I am interested shows the same names, everyone purely Anglo-Saxon origin, that are found on the regimental rosters of the Revolutionary, Indian, Mexican and Civil wars.

They are a people of the soil, born in log cabins of land-owning parents, raised as Christians and workers and taught from the first to work earnestly and give every man his due. They are bound to all classes of Georgians by the ties of blood, friendship in peace and companionship in war. Not one of the elements that are productive of strikes or any kind of labor troubles are found in our operative class. These people are as good as their employers, according to the pure democratic principles existing in Georgia, and their social position among the farming class is in no way impaired by labor at the loom. On Sundays I note the operatives going into the country for a day's visit to the old homestead, and thus never leave the conservative influence of their sires. These people made Georgia what she is, and will never retard her progress by strikes. The wages South may not be any higher than those of New England, but a dollar here has greater purchasing power than in Massachusetts. In Georgia fuel is the cheapest, food next and clothing last. The use of cornmeal is universal among our people—it is pure, nourishing, healthy and cheap. Pine wood is sold by the farmers at a low figure and fires are not necessary, beyond preparing food, exceeding seventy days in the year. This is November 17, and neither fires or heavy clothing have been needed yet.

Clothing need not be heavy or expensive, and our climate is mild and village conditions conducive to health. Doctors reap practically no benefit from opera-

tives, and lawyers refuse to subscribe to stock, as they find no criminal practice or damage suits in the factory settlement. These conditions, so much sought after by the manufacturers, spring from and are a part of the sturdy virtues of the Southern farmer, who never seeks redress for wrongs in labor combinations or mob violence, but adjusts all of his troubles as an individual and not as a mass. I find that when the Georgia operative, which is so rarely the case that I had to seek for an instance, fancies his wages or hours no longer suitable, he goes, alone, to his employer, and if things are not adjusted to his liking he quits work, silently packs up and seeks work in another factory. That is his worst. He abhors labor unions, as he is suspicious by nature and of the stuff that sent his forefathers into the forest to work out the South's greatness—alone. He considers himself amply able to settle all his troubles in person; he is the individual, not a combination of laborers. It is claimed that these conditions will change as factories increase in the South. I deny this—not so long as the operatives are recruited from the country in which the factory is located.

The Southern cotton factory will solve the race question. The negro is a natural farmer, happy with his mule, his fields and his illiteracy. In town, educated and idle, he breeds crime and strife. On the farm he is happy, contented, and no man is his superior in the production of cotton. Negroes are not a success as operatives, being at present employed only in "outside" work in our mills. They can be worked to a certain extent, but only in what is distinctly understood to be a menial capacity to the white operatives. As engineers, stokers, warehouse hands, truckmen, messengers, scrub-women and scavengers in the village they are found useful, and no exception whatever is taken by the whites to their employment in this way. In the gins they are used entirely, under the direction of one white man. In the oil and grist mill white labor is difficult to employ and wholly unsuited to the active work. Negro women are universally employed in cottonseed-oil mills to stitch press-bands for the presses. Any effort to change these conditions will only result in disaster to him who tries it. Georgia negroes are building a cotton factory to be owned, managed and operated by their race. This is an exception, and I do not think will be followed by others.

Let the 700,000 negroes of Georgia turn their attention to agriculture, and the whites to manufacturing, all for the good of the State and the prosperity of the individual.

It is in the savings that the large profits are made, and it is nothing uncommon for Georgia factories to earn 20 per cent. Even in such years as 1893, 1894 and 1895 Southern mills paid 10 to 12½ per cent. dividends and laid aside money for improvements. It is proposed to operate gins in connection with our factories, ginning the cotton free for the farmer. This will save him over \$2 per bale, being cost of ginning, bagging and ties and warehouse charges, which, in the end, the mill has to pay.

Today I scarcely know of a county in my State that is at all suitable for cotton spinning that is not making an effort, through press, promoters and bankers, to get a mill located there. 1900 will be the greatest era of our prosperity, and the home mill will break the bondage of European domination of the cotton market and prices.

C. W. Myers

Influence of the Water-Powers of the South on Its Development.

By E. W. Myers of the North Carolina Geological Survey.

Until the past decade the population of the States laying to the south of Mason and Dixon's line has devoted itself almost exclusively to agricultural and commercial pursuits, and manufactures have been neglected. Of late, however, there has been a change in this respect, and each year more attention is being paid to the conversion of the raw materials in which this section abounds into the manufactured articles with which the markets of the world are supplied. In particular is this true of the manufacture of cotton, of which these States furnish a large portion of the world's supply.

It is manifestly better to work up a raw material into its finished form near where it is produced, if such be possible, and thus save the money which otherwise goes to pay for freight. A cotton mill which can purchase its supply of cotton at the mill doors has thus a very great advantage over a mill located hundreds of miles from the cotton fields, and more manufacturers are realizing this each year, with the result that many mills are being built in the South.

Power for the operation of machinery is necessary in all manufacturing enterprises, and the cost of this has a very material bearing on the cost of the finished product. In these days of close business competition each item in the cost of production has to undergo a very strict scrutiny, and if it be discovered that any item can be materially reduced in amount without hurt to the product, then the manufacturer so reducing cost can undersell his competitors in the market and secure to himself a larger volume of business or operate his plant at a larger profit.

It is a fact, denied now only by those interested in the manufacture and sale of steam engines, coal producers and by sundry promoters of manufacturing towns without water-power advantages, that water-power is in almost every case cheaper than steam-power. This being the case, the manufacturer who uses water-power works at greater advantage than his competitor who is compelled to use steam, and can undersell the latter in the market.

This being the case, attention has naturally been directed toward the securing of water-powers and their development to supply manufacturing needs; at first those powers which were close to transportation lines, and later, since the electrical transmission of power has become a commercial success, more inaccessible powers have been developed and the power transmitted where it was desired to utilize it.

There was formerly a superstition that cotton could not be manufactured in the South, the bugbears of climate and lack of labor being invoked in its support, but the Southern mills, earning from 10 per cent. to over 60 per cent. annually on their investments, have disproved this, and the coming of the cotton mill to the cotton has begun, and will end only when the mills of the Southern States use the cotton which these States produce. It has been proved that the climate is favorable to the production of certainly all but the very finest grades of goods produced from cotton, that the summer heat is not sufficient to enervate the operatives and prevent good work, that cheap and intelligent labor, unaffected by strikes, can be secured, beside the very great advantage of proximity to the raw material.

This progress in manufactures is in

very large measure due to the presence of the numerous water-powers in which these States abound. Those which have been already developed are an actual factor in the advance, and the presence of those as yet undeveloped guarantees a vast potential store of wealth, for as they are needed they will be used.

As yet most of the powers which have been developed have been small, sufficient to supply the needs of one or a very few mills, but even in this case flourishing little towns have sprung up, called into existence by the water-power near which they stand and to which they owe their prosperity. Such small towns are of vast benefit to the farmers dwelling near by, for they furnish a near market and a ready sale for all farm products, and thus a large part of the money which the water-power has produced goes back to the land. Nor are the farmers alone benefited, for they stand at the foundation, and their financial benefit is extended to all classes in the surrounding country. Moreover, in all these places the sound of the school bell may be heard daily where before there was none, and thus the new generations are being trained that they may rise to better things than their fathers know.

Many of the largest powers of the South are as yet undeveloped, for the reason that there has been no need for them, but many of them are soon to be turned to account and the power sold to mills located near by, or it is to be electrically transmitted to a distance and used where desired. There are numerous manufacturing industries which will locate in the South as a result of this, for many such enterprises require only a small amount of power, which can be used intermittently, if so desired, and electrically-transmitted power fills this requirement perfectly. Each of these enterprises adds something to the welfare and progress of the community in which it is located.

In the question of cheap power the Southern States stand without a rival, for within their borders many hundred thousand horse-powers of easily available water-power are annually going to waste, waiting only for the hand of man to harness them and put them to work.

It is the purpose of this article to sketch very briefly a few of the larger undeveloped powers. It will be impossible within the space at my disposal to do more than indicate these localities where a large amount of power may be made easily available. Beside the localities noted, there are hundreds of smaller powers where power sufficient to supply large mills cannot be noted at all.

Virginia.

Potomac River.—The principal disadvantage in this stream is the very great variability in its flow. The conditions of bed and banks with reference to the foundations of dams and for the location of buildings is almost uniformly favorable.

The first power on the river as it is ascended is at Little Falls, located about five miles above Georgetown. There is an available fall here of about ten feet and an available minimum horse-power which has been estimated at about 1200 horse-power. In ordinary seasons this figure will be largely increased, the amount varying between 2200 and 2600 horse-power, and for the larger part of the year very much more than this will be easily secured.

Great Falls.—The next site on this

river is at Great Falls, about fourteen miles above Georgetown. The water here pours over a solid mass of rock, and the banks are of the same material, often very steep and precipitous just at the edge of the water, but with level or nearly level places on top of the bluffs, extending back 100 yards or more from the river, the facilities for buildings being ample on both sides of the river. At the principal fall the stream descends thirty-five to forty feet in from 100 to 150 yards and from eighty to ninety feet in a mile or mile and one-half. The minimum power available here with eighty feet fall has been estimated at about 9700 horse-power, and at ordinary low water about 18,000 horse-power are available. During the larger part of the year the power will be much in excess of this.

The next site of importance on this river is where it breaks through the Blue Ridge, just below Harper's Ferry. From this place the stream falls twenty-five feet in the distance of three miles, and the banks, though steep, favorable for a dam, and with numerous building sites available. The power here has been estimated at about 2500 horse-power as a minimum and at about 5000 horse-power for the average dry season of the year. The power will, of course, be largely in excess of this during the larger part of the time.

Just above Harper's Ferry on this river there is a fall of twenty-two feet available and with very favorable conditions for construction. The minimum power here has been estimated at 1400 horse-power and the average for dry seasons at from 2600 to 2900 horse-powers.

Above Harper's Ferry there are numbers of other sites where power ranging from 500 to 1000 horse-power can be secured.

Shenandoah River.—On the Shenandoah river, just above its junction with the Potomac at Harper's Ferry, there is a fall of about eighty-four feet, with an available power which has been estimated as 2640 minimum and at 5150 horse-power for the low season of dry years. In ordinary years the power would be therefore largely in excess of this amount.

Rappahannock River.—This river crosses the fall-line at Fredericksburg, and there is a fall here of forty-eight and one-half feet in one and one-half miles. This power has been estimated to be capable of yielding 1000 horse-power as an absolute minimum and from 1400 horse-power up for ordinary years. This power is very conveniently located, having transportation facilities both by land and water, Fredericksburg being at the head of navigation on this river.

Besides this power, the river has several falls where it is probable power in considerable quantities could be easily and cheaply developed.

Appomattox River.—On the Appomattox river at Petersburg, where the river crosses the fall-line, there is a fall of about 110 feet in a distance of six and one-quarter miles. The power is estimated to be 2200 horse-power as an absolute minimum and at about 2900 horse-power for the dry season of dry years. Of course, in the ordinary years the power will be largely in excess of the figures given. The transportation facilities here are of the very best, both by land and water.

James River.—The first power on the James river is that at Richmond, where the river crosses the fall-line. The fall here is eighty-four feet in about three miles, and there is a very large power available here, being given as an absolute minimum of 2400 horse-power by Prof. Geo. F. Swain in his report to the Tenth

Census on the "Water-Powers of the Southern Atlantic Watershed." The power in all ordinary seasons is very largely in excess of this figure. Considerable amounts of power are in use here already.

North Carolina.

Roanoke River.—The first power on this river as it is ascended is that at Weldon, N. C., where the river crosses the fall-line. Here there is a total fall of eighty-four feet in a distance of about nine miles above the town, the river within this distance being very rocky, the channel very tortuous and interspersed with islands. The bed of the river is almost solid rock, and the banks generally abrupt, especially on the upper part. Water-power developments have been in progress here for several years by two companies.

The Roanoke Navigation & Water-Power Co. is developing the total fall of eighty-four feet, which will be used in two levels of twenty-one and forty-eight feet each.

The canal of the Roanoke Rapids Co. is situated between the one just mentioned and the river, and gives an available fall of about thirty feet, which will yield, it is said, about 6100 horse-power.

The total power available here is estimated by Professor Swain, in a lately-published bulletin of the North Carolina geological survey,* as an absolute minimum of 14,280 horse-power, and the average for the low season of an average dry year is similarly stated to be 18,564 horse-power gross.

This large power is in use by several large mills, and others are projected for the near future.

There are several smaller powers on this river above the one just noted where small powers could probably be developed.

Cape Fear River.—The first power on this river is at the crossing of the fall-line at Smiley's Falls. The fall here is about twenty-seven feet in a distance of three and one-half miles. The bed is rock and the facilities for dams and buildings are said to be good. The available power here is estimated in the report above referred to as being an absolute minimum of 1900 horse-power, and for the average low season of dry years 2800 horse-power.

Next to Smiley's Falls the most important power on the river is that known as Buckhorn Falls. The available fall here is about twenty feet, and the power is estimated, as before, as ranging from 1300 to 2000 horse-power. These falls constitute a most excellent power, which is easily available. There is now a project on foot to develop this site and transmit the power to nearby towns.

Yadkin River—The Narrows of the Yadkin.—No description can do justice to this spot, which is one of the most wonderful to be found in the South. In the Narrows proper the river has cut out its channel in the solid rock, the banks being almost perpendicular to a height of five to ten feet above low water, when they retreat nearly horizontally for a distance of 100 to 150 yards from the immediate channel, where the hills rise very steeply. Thus the average width of the ravine is in the neighborhood of 250 yards or less, while the channel through which the whole volume of the river pours in low water is seventy-five feet or less in width, and the water is said to be very deep. The total fall in the river from the top of the Narrows to the mouth of the Uharie river is ninety-one feet.

*Bulletin 8, North Carolina Geological Survey, by J. A. Holmes, Geo. F. Swain and E. W. Myers.

Development work is now being done on this property by the North Carolina Power Co., which will develop a large amount of power, which will be transmitted to nearby towns and used for various purposes.

Motts Falls, located on this river a short distance above the Narrows, is also being developed by the Yadkin Power Co., which intends, it is said, to transmit the power.

Bean shoal, on the upper part of the river, is of some prominence as a possible water-power site. The fall here is thirty-nine feet in a distance of four miles. The bottom here is of ledges of rock, which cross the river at almost right angles to its course, frequently forming natural dams extending nearly across. A canal has been built almost around these shoals with a view to rendering the river navigable, but the work was abandoned many years ago. The available power here is estimated at a minimum of 1560 horse-power and at an average for the dry season of dry years of 2320 horse-power.

Catawba River.—The first shoal of importance in this river in North Carolina is the Mountain Island shoal. The fall here is about thirty-eight feet in a distance of about four miles. The power at this shoal is being partially used by a cotton mill. The available power here ranges from 1000 to 1500 horse-power.

Above this locality there are a number of other powers, where power in almost as great quantity may be secured, but which lack of space forbids mention.

French Broad River.—On the French Broad river, between Hot Springs and the mouth of Bush creek, a distance of about seven miles, there is a total fall of 201 feet, and could this be fully developed it is probable that about 24,000 horse-power would be secured. It is, however, impossible to develop this power to its full capacity.

South Carolina.

Catawba River.—Many years ago the State of South Carolina made attempts to render this river navigable. The first of the old navigation canals is that known as Wateree canal. Here there is a fall of fifty-two feet in a distance of five miles, and it is stated by Professor Swain that from 5700 to 8800 horse-power can be developed here.

Great Falls of the Catawba.—Here the total fall is about 173 feet, and the power which can be developed is about 21,000 horse-power.

At Landsford there is an available fall of about forty feet and an available power of about 4500 horse-power.

Broad River.—On the Broad river at Columbia there is a total fall of forty-one feet, and one of the most magnificent powers in the South is available. The power here is stated to be 16,988 gross. This power is being used at present by several large mills, and it also furnishes electrical-power to the street-car and lighting companies.

At Ninety-nine Island shoal on this river there is a fall of 50.62 feet, and at Cherokee shoal, a short distance above here, is a fall of 50.95 feet, both of which are easily available and where larger powers can be developed.

Georgia.

Power at Augusta, Ga.—One of the finest powers in the Southern States is located here, having about fifty feet fall. This power was fully developed about 1875 by the city of Augusta, and large amounts of power are here available. The absolute minimum power here is about 10,000 horse-power, and 13,500 horse-power as an average for the low season of dry years. The transportation advantages here are the best, and build-

ing stone of good quality can be had with ease.

Above this, on this same river, are a number of small shoals where power in small amounts is available.

The next most important shoal on the river is known as Potter's shoal, where in seven miles there is a fall of 74.88 feet. This is the finest power above Augusta and is entirely unutilized at present. The river is about 800 yards wide at this point, with favorable conditions for development, and fine building materials abound in the immediate neighborhood. The available power here is said to be in the neighborhood of 10,000 horse-power as an average for the low seasons of dry years.

Above this site are others of less importance.

At Milledgeville, Ga., there is an available power ranging in magnitude from 2000 to 2500 horse-power, with a total fall of thirty-four feet.

Tallulah Falls, with a fall of 335 feet; Great Amicola, with a fall of 234 feet; Jack Tod shoal, with a fall of fifty-one feet; Great shoal of Chattahoochee river, with a fall of 120 feet; Garner shoal on Alcovy river, with a fall of eighty-five feet, and Antony shoal on the Broad river, with over seventy feet, are some of the more prominent powers in this State.

On the Etowah river, a few miles east of Cartersville, Ga., is probably the most valuable power to be found anywhere along its course, the fall amounting to ninety-two feet in a distance of seven miles. About 3500 horse-power are said to be available here.

At Columbus, Ga., and at West Point, Ga., considerable amounts of power have been developed on the Chattahoochee river. At Columbus the available fall in five miles is 120 feet, and the available horse-power is estimated at from 34,000 to 35,000, which is utilized only in small part.

Alabama.

At Tallassee Falls of the Tallapoosa river, near Montgomery, Ala., a large power is used by the Tallassee Falls Manufacturing Co., and it is stated that over 10,000 horse-power can be developed here.

On the Coosa river at Wetumpka, Ala., there is an available fall of about eighty feet, and over 19,000 horse-power can be developed here. This power is given by a succession of shoals aggregating about fifteen miles in length, and the development would necessarily be very costly. However, the power thus obtained would be in all respects a magnificent one and calculated to build up a manufacturing city.

On the Tombigbee river there is no power, and on the Little Tombigbee the amount of power in use is very small and the total amount available not great.

On the Black Warrior river there are several small powers. Possibly the largest is at Squaw shoals, where the fall is 41.5 feet in about three miles. The available power here in dry seasons is said to be about 2200 horse-power.

At Tuscaloosa there is an available fall of 24.6 feet, which, it is stated, would yield about 1250 horse-power.

The amount of power in Mississippi is extremely small, and there is no information at hand concerning any of it.

The Merchants and Farmers' Bank of Spartanburg, S. C., has a capital of \$100,000 and undivided profits of \$30,000. Mr. A. L. White is the cashier.

During the past two years nearly 400 incorporations of industrial undertakings have been made in North Carolina.

COAL AND COKE.

Twenty-Five Years of Their Development in the Southern States.

By Edward W. Parker, Statistician of the U. S. Geological Survey.

With the single exception of the State of Maryland and the Piedmont region of West Virginia, coal mining as an industry in the States south of Mason and Dixon's line and the Ohio river may be said to have been established in about 1870. Records of production (with the exception stated) are available only since 1873, in which year the total coal product of the Southern States was a little over 4,150,000 short tons. Of this total, Maryland and the Piedmont region produced (according to the records of the Cumberland coal trade) 2,674,101 long tons, equivalent to 2,994,993 short tons, leaving approximately 1,155,000 short tons to be distributed among Alabama, Kentucky, Virginia, Tennessee and the other regions of West Virginia. In 1874, the first of the quarter-century covered by this review, the total coal product of the Southern States amounted to 4,393,914 short tons. Since that time the history has been one of rapid growth, rivaled only

annual percentage contributed by the Southern States:

PRODUCTION OF COAL IN THE SOUTHERN STATES FOR TWENTY-FIVE YEARS, COMPARED WITH THAT OF ALL OTHER STATES, AND TOTAL OF THE UNITED STATES.

Year	Southern States	All other.	Total United States	Percentage of total
1874	4,393,914	48,152,006	52,545,920	8.4
1875	4,498,248	47,799,072	52,288,320	8.6
1876	4,133,115	49,066,885	53,200,000	7.8
1877	4,379,260	56,042,500	60,421,760	7.2
1878	4,498,723	53,384,777	57,853,600	7.8
1879	5,182,000	61,270,960	66,452,960	7.8
1880	6,034,557	65,447,012	71,481,569	8.4
1881	6,162,980	79,268,050	85,881,030	7.7
1882	6,317,041	96,468,748	103,285,789	6.6
1883	9,331,303	105,580,217	115,212,125	8.1
1884	12,052,617	107,682,434	119,735,051	10.1
1885	13,052,356	97,905,166	110,957,522	11.8
1886	13,155,194	100,534,833	113,680,027	11.6
1887	15,897,317	114,752,894	130,650,211	12.2
1888	17,797,424	129,951,983	148,659,407	12.6
1889	19,322,566	121,907,447	141,229,615	13.7
1890	22,199,124	135,550,839	157,770,963	14.1
1891	25,363,697	112,702,971	168,566,668	15.3
1892	26,679,757	152,649,314	179,329,071	14.5
1893	30,010,149	154,342,625	182,352,774	15.4
1894	28,391,605	142,359,519	170,741,526	16.6
1895	30,839,423	162,278,107	193,117,530	16.0
1896	32,852,649	159,133,717	191,986,357	17.1
1897	35,632,365	164,563,300	200,221,665	17.8
1898	40,166,606	179,808,062	219,974,667	18.3

It is not considered necessary for the purposes of this article to show the production in each State for the entire period under review, but a statement showing the output for each five years has been prepared and is presented below. One of the interesting features shown in this table is that while the product in Maryland in 1898 was 1.8 times that of 1874, and nearly two and one-half times that of 1879, the State's percentage of the total has fallen from 57 in 1874 to 12 in 1898; but while Maryland's percentage has steadily decreased, that of West Virginia has uninterruptedly increased from 25.5 in 1874 to 42 in 1898, and if present indications are realized in a few years West Virginia will hold a position in the Southern States co-ordinate with that of Pennsylvania in the total production—exceeding 50 per cent. In percentage of increase during the past twenty-five years Alabama holds the record. Her percentage of the total product of the Southern States in 1874 was 1.1, increasing to 19 in 1884 and 1889, and falling back to 16 in 1894 and 1898. The decreased percentage of Alabama in the latter years was not due to any decrease in production, but to the enormous tonnage mined in West Virginia. The percentages contributed each year by Virginia, Tennessee and Kentucky have remained comparatively steady during the entire period.

The statistics presented in this table may be studied from another standpoint and be found interesting. The total product, it is observed, has in twenty-five years increased nearly tenfold. Maryland, whose fields were practically fully developed in 1874, had a product in 1898 less than double that of 1874. West Virginia's product has increased fifteen times. No product was reported from Virginia in 1874, although some coal was probably mined in the Richmond basin and also from local mines in Montgomery county. The estimated product of 100,000 tons in 1879 was multiplied by eighteen in 1898. Tennessee's output in 1898 was more than nine times that of 1874, and Kentucky's a little over ten

In the following table is presented a statement compiled from the records of the United States Geological Survey, showing the production of coal each year since 1874 in the Southern States, in all other States, the total product, and the times as much. The greatest multiple of increase is shown by Alabama, whose product in 1898 was about 130 times that of 1874. Arkansas, with no reported product in 1874, increased her production 100 times from 1879 to 1898. The Indian Territory more than trebled its

product from 1884 to 1898, while the output of Texas has multiplied by five in the ten years from 1889 to 1898:

not increased notably in the past eighteen years, the actual amount of coke made in that region has increased in much greater

PRODUCTION OF COAL IN SOUTHERN STATES EACH FIVE YEARS FROM
1874 TO 1898.

*Estimated.

It frequently occurs, as in the case of Maryland in 1879, that because of strikes, business depression or other disturbances, one year may show a falling off in production, while booms, strikes in adjoining States or some other cause may lead to a temporary activity in a certain State, and the statistics for those years would not fairly represent the average industrial conditions. It is believed that averages taken for periods of five years would practically obliterate any such accidental fluctuations, and the writer has, accordingly, prepared the following table showing the average yearly production in the five five-year periods from 1874 to 1898. It will be seen from this table that without a single exception the production has increased steadily in each State. It is also to be noted that the average for the first five years is practically the same as that for 1874 given in the former table, while there is a difference of 6,500,000 tons in the average for the last period as compared with 1898. In the five States from which a product was reported in the first five years Maryland is shown to have nearly doubled her output; Tennessee and Kentucky's have increased each about six times; West Virginia's thirteen times and Alabama's more than fifty times. Predictions for the future are not included in this table.

proportion than that of the United States as a whole and of the "other States;" in fact, in this regard the comparisons are much more favorable to the Southern States than are those of coal production. In 1880 the total coke product of the United States was 3,338,300 short tons, of which the Southern States contributed 373,982 tons, or about 11 per cent. Five years later (1885) the total coke product was 5,106,696 short tons, of which 906,689 tons, or 18 per cent., came from the Southern States. In the next five years the total had increased to 11,508,021 short tons, to which the Southern States had contributed 2,542,109 short tons, or 22 per cent. In 1895 the Southern States produced 3,462,206 short tons in a total of 13,333,714 tons, thus contributing 26 per cent., while in 1898 29 per cent. of the coke product of the United States was made in Dixie.

From 1880 to 1898 the total coke product of the United States has increased not quite five times—that is to say, the product last year was nearly five times that of 1880. The coke product of the Southern States in 1898 was 12.4 times that of 1880. Alabama's product in 1880 was only 60,781 short tons, in 1890 it was 1,072,942 short tons, and in 1898, 1,663,020 short tons. Virginia, with no production in 1880, made 49,139 short tons in 1890 and 531,161 tons in 1898. West Virginia made 138,755 tons in 1880 and 1,925,075 tons in 1898. Tennessee's production has been about the same during the last four years, at about three times what it was in 1880. The other States are unimportant.

In the following table is shown the coke product of the Southern States and the

PRODUCTION OF COAL IN THE SOUTHERN STATES—AVERAGE PERIODS 1874 TO 1898 (SHORT TONS)

	1874 to 1878 inclusive.	1879 to 1883 inclusive.	1884 to 1888 inclusive.	1889 to 1893 inclusive.	1894 to 1898 inclusive.
States.					
Maryland	2,106,534	2,137,442	2,974,805	3,450,754	4,135,581
Virginia		*147,000	697,243	776,348	1,553,142
West Virginia	1,075,200	1,844,767	4,223,055	8,658,906	13,368,231
North Carolina				10,897	16,471
Georgia			203,343	242,702	258,741
Alabama	129,920	708,960	2,276,400	4,617,934	5,653,741
Tennessee	417,000	738,208	1,644,509	2,100,655	2,658,271
Kentucky	652,000	1,210,000	1,640,637	2,809,962	3,458,481
Arkansas		723,250	141,294	466,434	769,611
Indian Territory			1,020,620	1,031,585	1,253,000
Texas				206,530	555,171
Total.	4,379,654	6,809,636	14,421,906	24,372,657	33,677,542

*Average for four years—1880 to 1883. †Average for three years—1881 to 1883. ‡Average for four years—1885 to 1888.

The Sales Motives Industry

The statistics relating to the manufacture of coke in the United States have been compiled by the United States Geological Survey since 1880. Prior to that year no attempt was made to collect the data in regard to this industry. The survey records show that in 1880 coke was made in twelve States, six of which were included in the Southern States. In 1899 coke was made in twenty-one States, but the number of Southern States included among them was only seven. Texas was added to the list for two years, but the operations, which were experimental, were not successful, and the ovens have been abandoned. But while the number of coke-producing States in "Dixie" has

total output of the United States since 1890.

PRODUCT OF COKE IN THE SOUTHERN STATES AND IN THE UNITED STATES SINCE 1880.

Year.	Southern States. Short tons.	United States Short tons.
1880.	373,962	3,338,300
1881.	487,426	4,113,760
1882.	623,730	4,795,321
1883.	778,681	5,464,721
1884.	854,297	4,573,805
1885.	906,653	5,106,696
1886.	1,223,262	6,45,369
1887.	1,434,843	7,611,705
1888.	1,689,535	8,540,030
1889.	2,259,015	10,268,022
1890.	2,542,109	11,508,021
1891.	2,969,679	10,362,688
1892.	3,159,828	12,010,829
1893.	2,767,510	9,477,580
1894.	2,702,956	9,205,632
1895.	3,462,206	13,333,714
1896.	3,838,276	11,788,773
1897.	3,734,000	13,288,984
1898.	4,619,688	16,047,000

The output of coke in the Southern

States by States each five years since 1880 has been as follows:

PRODUCTION OF COKE IN THE SOUTHERN STATES EACH FIVE YEARS FROM 1880 TO 1898 (SHORT TONS).					
State.	1880.	1885.	1890.	1895.	1898.
Ala.	60,731	301,180	1,072,942	1,444,339	1,663,020
Ga.	38,041	70,660	102,233	60,212	49,529
Ind. T.	1,546	3,584	6,639	5,175	34,110
Ky.	4,250	2,704	12,343	25,460	22,242
Tenn.	130,609	218,842	348,728	396,790	394,556
Texas.	.....	286	.....	.....	.....
Va.	49,139	165,847	244,738	531,161	.....
W. Va.	138,755	280,571	833,377	1,285,206	1,925,071
	373,982	906,889	2,542,109	3,462,206	4,619,888

Conclusion.

It must be remembered that nearly all of the remarkable industrial development in the Southern States, which is shown by the foregoing statistical review, has

been accomplished within one generation, and just after the most devastating war that ever rendered a country desolate. The recovery of the South from the effects of the war is nowhere better illustrated than in the history presented herewith. Although the present age is the iron age, it recognizes coal as its ruler. The history of the coal development is the history of industrial growth, and the record shown by the Southern States in this particular is practically unparalleled in the world's history.

Edward W. Parker

IRON-MAKING IN THE SOUTH.

Some Characteristics of the Industry and the Developments That Have Taken Place in Recent Years.

By Edward H. Sanborn of Philadelphia.

Excepting only cotton, the South possesses no natural resources to be compared in magnitude, value and importance to the abundant deposits of iron ore and coal. These form already the basis of an industry that not only is of great importance at the present time, but also furnishes the foundation upon which the industrial future of the South will depend. The natural conditions upon which the Southern iron industry is based are simple and easily defined, and it is equally easy to see in these conditions an assurance that the manufacture of iron and steel will always be of much importance in the South, however rapid may be the increase in the industry elsewhere, and however great may be the advantages to be found in other parts of the country. Large deposits of iron ore, coal and limestone, easily mined and assembled at the blast furnaces at small cost for transportation, constitute the advantage which the South enjoys in the manufacture of iron. This condition prevails in the South as in no other part of the United States or the world.

Typical Conditions.

To illustrate, let us take any typical Southern furnace plant and see under what conditions pig-iron is made. The Birmingham district, where the development has been most significant, will show perhaps the most interesting conditions. At Ensley, Bessemer, Thomas or Woodward one can stand on the furnace and see plainly without the aid of a glass the tipple at the coal mine, the coke ovens, the limestone quarry and the ore mines in Red mountain. Under such circumstances it is easy to see that the cost of assembling the raw materials is the smallest item in the cost of producing pig-iron. Not only is the freight on materials of small amount, but there is a corresponding economy in the cost of the materials themselves. There is such a range in mining costs that it is impossible to strike an average for any district or section. During the present year iron ore has been mined in Red mountain by contract as low as forty-five cents per ton on the cars, and fifty-five cents per ton would probably be a safe average for present mining costs on the mountain. This covers only mine costs, however, with no allowance for interest on the capital invested in the land itself, but much of this land was bought at prices which would not figure as of any importance in interest charges. This ore is a red fossiliferous ore averaging say 42 per cent. metallic iron.

Conditions such as these can be duplicated at many points in the South. At

some points ore is at the furnace or within sight; at others the coal mine and coke ovens are immediately at hand, and then again iron is made at many points where none of the materials are upon the furnace property, but so readily assembled as to permit operations upon a satisfactory and profitable basis. Perhaps the distinctive character of the Southern iron industry may best be described as self-contained, that is, a complete dependence upon local resources.

Changes North and West.

This was the universal condition in the iron industry of the entire country until a few decades ago. In Pennsylvania, New York and Ohio iron was made from ore mined near the furnace, and either with coal or coke from nearby mines and ovens or with charcoal from timber cut upon the furnace lands. The development of the Lake Superior iron-ore mines and the growth of the coke industry in the Connellsville region of Pennsylvania have completely changed the characteristics of the iron industry of the North and West. The quantity of pig-iron now made in those sections of the country from materials obtained within fifty miles of the furnace is insignificant in comparison with the vast amount that is made from lake ores and Connellsville coke hundreds of miles from either ovens or mines.

The South, however, has been practically beyond reach of the influence of Connellsville coke or Lake Superior ore, and its continued reliance upon local resources surrounds its operations with conditions that are now peculiar to that section. To put it in another way, the South is the only section of the country that has been able to continue making pig-iron under the same conditions, as regards the supply of materials, that prevailed when the industry began in this country.

Maryland and West Virginia.

Two States that are classed with the South, however, have followed Pennsylvania and Ohio in departing to a large degree from local resources. Maryland now depends wholly upon Cuba for ore and upon Connellsville or West Virginia for coke, so that the iron industry in that State is no longer typically Southern. West Virginia, that is, the Wheeling district, presents precisely the same conditions that are found in Pittsburgh—Lake Superior ores smelted with coke from Connellsville, or some of the more recently developed West Virginia coal fields. Virginia, Tennessee and Alabama, however, continue to depend upon resources close at hand and usually under the same control as the furnace itself. It

is worthy of note that in all the larger operations the production of all the raw materials is controlled by the interest that consumes them. Very little iron ore is mined in the South for a market. Many furnaces still buy all the coke they use, but there is a tendency towards concentration in this as in all other operations incident to the making of pig-iron.

The reason why the South has not been affected by the Lake Superior developments in the manner in which Pennsylvania and Ohio have been affected is largely geographical. It is mainly a matter of distance. The South does not make iron solely for a local market. Most of the Southern iron is sold in the North and West, Ohio probably being the largest customer. Consequently, to ship Lake Superior ore to Virginia, Tennessee or Alabama and make it into pig-iron to be sold in Ohio would make a more expensive iron than could be made in that State itself. The Southern iron industry has been protected, as it were, by its distance from the lakes. In Pennsylvania, Ohio and Illinois local ores have been abandoned for Lake Superior ore and are making Bessemer pig-iron mainly, leaving foundry and mill grades more and more to the Southern furnaces.

This is easily demonstrated by the statistics of production. Ten years ago, in 1888, the total output and the product of Bessemer iron in certain States was as follows:

States.	Total.	Bessemer.
	Gross tons.	Gross tons.
Pennsylvania	3,204,630	1,589,343
Ohio	985,552	300,974
Illinois	583,310	492,032

In 1898 the product of the same States was as follows:

States.	Total.	Bessemer.
	Gross tons.	Gross tons.
Pennsylvania	5,537,832	4,040,965
Ohio	1,986,358	1,570,535
Illinois	1,365,898	1,210,124

These three States produced 4,723,492 tons of pig-iron in 1888, of which 2,373,049 tons were classed as Bessemer grade, a fraction over 50 per cent. In 1898 the same States made 7,890,088 tons, of which 6,831,624 tons, or nearly 88 per cent., were graded as Bessemer. These three States made 3,166,596 tons of iron more in 1898 than in 1888, but their product of Bessemer iron increased during the same period 4,458,575 tons, showing that the growth of the output in pig-iron in the North and West not only has not increased competition with the South, but has even left more and more of a market for Southern iron. This is an interesting fact to bear in mind when considering the trade relations between Northern and Southern iron.

Bessemer Possibilities.

Bessemer grade pig-iron is not now made as a regular product in the South; cannot be made to advantage under existing conditions. There is food for thought in the possibilities of making Bessemer iron in the South from foreign ores. Birmingham is about as far from Mobile as Harrisburg is from Baltimore, and if Cuban ore can be used in the interior of Pennsylvania, it would seem practicable to use the same in Alabama. Maryland, by the use of Cuban ore, has been removed from the distinctively Southern iron-making States, and it has been asserted frequently that foreign iron ore could be carried inland by the Norfolk & Western Railway at very small rates, as return freight for trains hauling coal to tidewater. More than once rumor has credited Virginia furnace men with the intention of testing the possibilities of this plan, but the experiment is yet to be tried. The demand for Bessemer pig-iron grows more rapidly than the market for the other grades, and the making of Bessemer iron in the South would mean the

broadening of the market for the furnaces in that section.

The Southern Industry Young.

While iron has been made in the South for more than a century, the industry in its present form is hardly a generation old. The manufacture of charcoal pig-iron, of course, dates far back of that, but twenty years ago coke furnaces were very few and far between. In Virginia the No. 1 furnace of the Longdale Iron Co. at Longdale is the only coke stack now in operation that was built prior to 1880, and this has been rebuilt so many times since its first construction, in 1827, that it is practically a recent plant. The period of greatest normal expansion of the pig-iron industry in Virginia was between 1880 and 1890, during which time no less than thirteen furnaces were built and put into operation. It is worthy of note in passing that, with possibly two exceptions, the furnaces built during this period have been in operation, with hardly an interruption, ever since they were first blown in.

From 1880 to 1890 was also the period during which the manufacture of pig-iron was developed in Alabama, thirty out of thirty-seven of the present coke furnaces having been erected during that decade. Seven out of twelve stacks in Tennessee were built during the same period.

What is generally designated as the "boom period" dates from 1890, and during the first two years of this era there was considerable activity in furnace building in Virginia and Tennessee. It is also worthy of note that with hardly an exception those furnaces that were built as adjuncts to land speculations have had careers full of trouble.

Furnaces of Greater Capacity.

There are fewer furnaces in the South at present than there were ten years ago, although there has been an increase of more than 80 per cent. in the productive capacity. The number of stacks, both coke and charcoal, and their aggregate annual capacity in gross tons in 1889 and 1899, are shown below:

	1889.		1899.	
Stacks.	Capacity.	Stacks.	Capacity.	
Alabama ..	44	1,240,000	45	2,093,000
Virginia ..	32	370,000	26	800,000
Tennessee ..	19	356,300	19	636,000
Maryland ..	16	240,700	8	381,000
Kentucky ..	7	79,400	9	259,500
W. Virginia ..	6	160,700	4	236,000
Georgia ..	5	71,400	4	87,500
Texas ..	1	7,100	4	55,000
N. Carolina ..	2	6,400	2	40,200
	132	2,532,000	121	4,588,200

The decrease in the total number of stacks, in spite of the construction of a number of new furnaces during this period, is due to the abandonment of many old charcoal furnaces which had outlived their usefulness. In Virginia, Tennessee and Alabama a score or more of these old-time plants have been abandoned during the past ten years.

In the South, as elsewhere, there has been a marked increase in the productive capacity per stack, owing to improved methods and better preparation of materials. As illustrating this, the following comparison of the rated capacity of a few furnaces has been compiled from the directories of the American Iron and Steel Association:

	1889.	1899.
	Gross tons.	Gross tons.
Crozer, Virginia	62,000	94,000
Longdale, Virginia	26,800	40,000
Citico, Tennessee	31,250	40,000
South Pittsburg, Tennessee	89,300	175,600
Hattie Ensley, Alabama	26,800	43,000
Sheffield, Alabama	107,100	225,000
Sloss, Alabama	125,000	225,000
Alice, Alabama	53,600	113,000
Ensley, Alabama	178,600	292,000

In every case in the above comparison the number of stacks in each plant is the same in both years, although in some instances there was an increase in the height or diameter of the stacks.

The accompanying table has been pre-

pared from the reports of the American Iron and Steel Association to show the total production of pig-iron in the United States and the amount produced in the South for each year since 1875:

THE SHARE OF THE SOUTH IN THE TOTAL PRODUCTION OF PIG-IRON.
(Gross Tons.)

Years	Total production in United States	Production in Southern States
1898	11,773,934	2,083,726
1897	9,652,680	1,913,346
1896	8,623,127	1,834,451
1895	9,446,308	1,702,088
1894	6,657,388	1,268,425
1893	7,124,502	1,567,299
1892	9,157,000	1,890,077
1891	8,279,870	1,708,965
1890	9,202,703	1,744,161
1889	7,603,642	1,398,841
1888	6,489,738	1,011,471
1887	6,417,148	829,854
1886	5,683,329	781,410
1885	4,044,526	645,388
1884	4,097,863	587,142
1883	4,595,510	624,340
1882	4,623,323	515,424
1881	4,144,254	421,018
1880	3,835,191	354,733
1879	2,741,353	256,897
1878	2,301,215	203,568
1877	2,066,594	183,178
1876	1,868,961	161,230
1875	2,023,733	190,240

It will be noted from this table that while the South produced scarcely more than 9 per cent. of the total pig-iron output twenty-five years ago, that section made in 1891, 1893 and 1896 more than 20 per cent. of the entire product. The periods of furnace construction and increasing output already mentioned are also clearly shown in the table. It will be seen that the first notable increase in production took place in 1880, and that the construction of new furnaces during the ensuing ten years brought the output up to a point in 1890 from which there has been but little change until last year.

To show the course of production in the different Southern States during the past ten years the following table is presented:

STATES.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Alabama ...	816,911	756,673	915,206	726,888	592,392	854,667	922,170	947,831	1,033,676
Virginia ...	222,779	295,292	342,847	302,854	298,086	346,589	386,277	307,610	283,274
Tennessee ..	267,626	291,738	300,081	207,915	212,773	248,129	272,130	263,439	
Maryland ..	147,321	123,398	99,131	151,773	5,600	10,916	79,472	193,702	190,974
W. Virginia 129,437	86,283	154,793	81,591	80,781	141,968	108,569	132,907	192,699	
Kentucky ..	47,861	44,844	56,548	47,501	33,854	63,789	70,660	35,590	100,724
Georgia	29,185	49,858	9,950	39,675	40,268	31,034	15,563	17,092	13,762
Texas	9,701	18,662	8,613	6,257	4,671	4,682	1,221	6,175	5,178
N. Carolina 2,840	3,217	2,908	2,843	....	323	2,151	....	....	....
Total	1,744,161	1,708,965	1,890,077	1,567,299	1,268,425	1,702,088	1,834,451	1,913,346	2,083,726

In view of all that has been written of the great advantages which the South possesses in the manufacture of pig-iron, question has been raised frequently as to the reason for the lack of more rapid growth of the industry. From 1880 to 1890 the product of pig-iron in the South increased from 354,733 tons to 1,744,161 tons, a gain of 1,389,428 tons, while from 1890 to 1899 there has been an increase of 339,565 tons in the annual product. It is argued that if the South possesses such resources as have been claimed, there should have been greater progress than the figures indicate. A thorough understanding of the facts will make this matter clear.

There are several reasons why there has been so little progress in the Southern iron industry during the past four or five years in particular. The boom which began about 1890 was probably the worst mishap that has ever befallen the pig-iron business of the South. In the early nineties a good many furnaces were built in Virginia, Tennessee and Alabama as incidental features of the land boom which swept over the South. Most of these furnaces were located without due regard to ore and fuel supplies, were promoted by men who had but little practical knowledge or experience in the manufacture of iron, and their prime purpose was to sell town lots rather than to make pig-iron. Failure was inevitable, investments of confiding stockholders were lost, and the whole effect of this speculative era was to bring the South into discredit with investors in other parts of the country.

The sudden spurt of activity, due to speculative causes in the early nineties, set a pace that was too rapid to be main-

tained, and aroused the expectation that greater developments would follow at once. The failure to realize this expectation led to the inference that the advantages of the South had been exaggerated and misrepresented. The iron industry of the South has suffered at the hands of over-zealous friends, and those who have had money to invest have been frightened off by the examples of failure and disaster which have confronted them.

The success with which some Southern furnace plants have been conducted is the best evidence of the real advantages which the South possesses. In Virginia, Tennessee and Alabama there are furnaces that have been continuously producing, during good times and bad, and never failing to pay dividends at regular intervals. I think those who are familiar with Southern conditions and competent to judge of iron-making possibilities will agree with the assertion that any well-located modern furnace plant in the South, with proper business management and unhampered by a burden of bonded indebtedness, can earn a larger return upon the invested capital than would be yielded by a similar investment in any other part of the country. Many a good furnace plant in the South has had all of its profits absorbed and finally has lost its capital by the unremitting demands of heavy fixed charged.

Another cause that has tended to retard the growth of the Southern iron industry is the rapidly-increasing demand for Bessemer grade pig-iron. In ten years the proportion of Bessemer iron in the total output has increased from 40 per cent. to more than 60 per cent. As the South is not a producer of this grade of

duced. Tennessee and Georgia together made about 277,000 tons of pig-iron last year and only 10,621 tons of rolled product, while Virginia, with an output of 283,274 tons of pig-iron, rolled 34,497 tons of iron.

The Question of Location.

Capital attracts capital; industries attract other industries. Wherever there is a large diversity of manufacturing interests consuming large quantities of iron and steel there is an inducement to establish plants to produce these materials. The enormous consumption of pig-iron and all kinds of rolled material in Pennsylvania, New York, Ohio Indiana and Illinois has tremendously stimulated the production of iron and steel in those States. The location where raw materials can be most cheaply and conveniently mined is not always the place suitable for the location of a blast furnace or rolling mill. There has been a wonderful development in iron and steel in Western Pennsylvania and Ohio in recent years, and in most cases the works have been located hundreds of miles from the base of supply of raw materials. The two factors which seem to control location are the facilities for assembling material and the accessibility of a market for the product. Northern Ohio has been a favored location, because of its situation midway between the Pennsylvania coal mines and the Lake Superior ore deposits with a vast local market for the pig-iron.

Need of Industries.

The South is lacking in diversified industries which consume iron and steel. Pig-iron is made in the South, shipped to the North and finally distributed again to the South in a thousand different forms of finished product. A vast amount of machinery made in the North and West goes into the South for the equipment of new factories. Of all the millions of dollars expended in recent years for machinery with which to equip the hundreds of new cotton mills in the South, hardly anything has gone to Southern shops, except here and there a small piece of simple machinery or some repair work. The establishment of a great variety of manufacturing interests such as might find support in the South is necessarily a slow process. The development of the rolling-mill interest, small as it may seem, has doubtless kept pace with the requirements of the local market, if indeed it has not even exceeded the demand. Every new machine shop, every additional foundry that is erected in the South increases the local market for Southern furnaces and broadens the foundation on which the iron industry rests.

Better Ship Steel than Pig-Iron.

Most of the discussion of Southern advantages in the manufacture of iron has emphasized the ability of the South to compete with the North in pig-iron, and the argument has been pointed by showing that Alabama pig-iron could be shipped to Pittsburg. I am of the opinion that this is a poor argument, and the weakest proof of Southern advantage. The advantage which Alabama, for example, enjoys in pig-iron is largely offset by the distance from the market and the high cost of freight. If it costs \$10 to make a ton of pig-iron in Pittsburg and only \$6 in Alabama, but costs \$4 to get the Alabama iron to Pittsburg, the odds are about even, and as a matter of fact the advantage is rather on the side of Pittsburg. If, however, the Alabama iron can be converted into steel at the point of production and rolled into bars, plates, sheets, shapes or wire rods, it will then be able to enter a common market in stronger competition with the Northern product.

Possibilities in Basic Iron.

Two recent phases of the Southern iron situation are full of promise. The remarkable development of the manufacture of basic open-hearth steel opens up a market for Southern pig-iron which the Bessemer steel industry has never afforded. Probably more than three-fourths of the open-hearth steel now manufactured in this country is made by the basic process, and this proportion is likely to increase rapidly until it embraces nearly all of the product. For three years past basic pig-iron has been made regularly in Alabama, and is now made in Virginia as well. The demand for this iron is now increasing rapidly, and there is no reason why the South should not have a very large share of the trade.

Basic Steel in the South.

The developments now in progress in the Birmingham district offer the greatest promise in the future for the Southern iron industry. The basic open-hearth steel plant at Ensley, with a capacity of 1000 tons per day, has just lighted its fires, and is now making steel. This will mean the shipment of a possible 300,000 tons of product annually, one stage further advanced beyond pig-iron. The establishment of a large wire-rod, wire and wire-nail mill adjacent to the steel plant means that possibly 100,000 tons of this product will pass through two or three additional stages of manufacture before entering the market. The basic open-hearth steel plant at the Birmingham rolling mills is now being enlarged and extended, and will add very materially to the finished product which the South will have to put upon the market.

The plant at Ensley embodies all the ideas and facilities that money and engineering skill can provide, and under the peculiarly favorable conditions which surround it its successful operation seems assured. Its success once demonstrated, doubtless there will be other plants of the same kind. The Sloss-Sheffield interests already talk of a great steel plant and the manufacture of basic open-hearth steel seems to be the next step in advance which the iron industry of the South is likely to take. This indeed would be of far more importance than any astonishing development in pig-iron.

A Satisfactory Situation.

Summing up the whole situation in the South, it would seem that the iron industry is upon a more substantial basis, in better hands and more promising of satisfactory results than ever before. There has been a great deal of foolish talk about what the South can do in iron manufacture by those who have neither thorough acquaintance with Southern conditions nor knowledge of the industry. Every practical man who looks into the matter and acquaints himself with the resources of the South recognizes readily the advantages of that region, which are of sufficient importance to speak for themselves without exaggeration. Wherever money has been judiciously invested in iron-making properties in the South with good business management and competent technical direction, there has been no reason to complain of the results. A more exact knowledge of the conditions under which pig-iron is produced in the South would doubtless lead to the investment of large amounts of new capital in the industry.

Edward W. Sander

From its oyster beds during the past eighteen months the State of Virginia has received a net revenue of \$42,500.

MARVELLOUS EVOLUTION OF SOUTHERN IRON.

By H. F. De Bardeleben of Alabama.

The humble and difficult beginning of the iron industry in the South, its marvellous increase, its present gigantic proportions and its well-justified promise for the future make the study of its evolution from a despised to an exalted position one of exceeding interest.

In the early seventies Alabama was not considered as a factor in the iron-making world, nor would those who converted "pig" into articles of use and comfort have left even a faint suggestion to those who should succeed them that they might look to the South for any considerable enlargement of supply or cheaper production of iron. However, when fate and the converging railroads had decreed that Birmingham would be the site of an important city, and the manufacture of iron was begun, the town-lot men used the furnace men to suit themselves. Dreams, inspired by a spirit of speculation, hope and heavy suppers, would find expression in the extravagant boom circulars which, among other wonderful predictions, informed the world that Birmingham would some day furnish it with \$8 iron. Thereupon the up-country ironmasters thought the entire Birmingham district to be an immense lunatic asylum without a roof on it, and they so criticised us; but afterwards, when we demonstrated the fact that we could actually make and sell iron at a less figure than \$8, they cast about for some other answer to the claims we were making for our section. Forced to yield the point proven, their next criticism was that our cheap product could only be utilized for castings and common classes of work, but only a short period elapsed before this cry was hushed by the loud demands of the Western markets and a part of the Eastern trade for our product, and once more the critics "pocketed" their incredulity.

Our Southern iron-makers next determined upon the manufacture of steel, and they betook themselves to changing their furnace products from iron for the open market to a special grade adapted for making steel. Our critics then made what they considered the entirely bombproof assertion that we could never make steel or become their competitor in that line to any extent. It is, however, an historical fact, which has added to the commercial glory of Alabama, that we have largely supplemented the product of those very up-country men by furnishing them with an article which has with their own iron gone into the manufacture of open-hearth steel and making as good as their best. We continued to furnish more and more of our "pig" to supply the North with metal to be used in the manufacture of soft high-grade steel until we became convinced that there was nothing in the criticism of the past to deter us from making steel, and that the time had arrived when we should participate directly in that industry. The small plant at the Birmingham Rolling Mill, erected a few years ago and successfully operated, has fully demonstrated our ability to make a good grade of steel at home.

The big plant at Ensley, now getting ready to go into operation, will play the same part, as a decoy duck in the "steel pond" to attract others, that the first coke furnace built in the early days of Birmingham played in the manufacture of pig-iron, which was to constrain parties to build furnace after furnace South until they had practically taken control of the markets of the States as to pig-iron to be used for ordinary purposes. Our growth in steel-making will be much more rapid

than was that of pig-iron in our struggle for ascendancy, for the reason that when we started the production of the latter we were a people comparatively, if not almost positively, ignorant as to its skillful manufacture, but we have followed the business long enough to raise a crop of young men along with the growth of iron production, coal-mining and coke-making, who have been educated in technological schools and are, therefore, far better equipped for the work than the pioneers who twenty-five years ago left the cotton fields and workshops to embark in this great industry. Many of us then were so ignorant we actually did not know that the rocks in the coal fields were stratified, and yet we accomplished much in the evolution of the iron industry of the South. Our young men, carefully and specially trained for the work, can accomplish infinitely more.

The one steel plant at Ensley will consume 1000 tons of pig metal daily, which will be taken from the open market. The export trade, started in reality, is yet in its infancy, but Southern iron made at and near Birmingham is being introduced into foreign places at the rate of 500 tons per day. These amounts, compared to our future export business, are but sample lots, and the figures above stated prove that if we were running only at the rate we were at the time iron took an advance this district would be short in furnace capacity to supply its customers to the extent of 1500 tons daily, making 450,000 tons annual shortage.

The population of the United States is growing rapidly and the amount of iron consumption has greatly increased during the last twenty years. The Spanish war has given us new territory of our own—Cuba, Porto Rico and, I hope, the Philippine Islands. To supply the wants of these new possessions, our own needs and export demands will require many more furnaces than we now have. These will be built where nature is most lavish in her bestowment of that combination of wealth that contributes to the most successful and profitable manufacture of iron.

After the Ensley steel plant has clearly been shown a commercial success, the erection of others like it will follow in quick succession, more rapidly and numerously than did our furnaces in the early days. The eyes of the world, which first merely glanced at us, then looked with wonder and surprise, shall be fully fixed upon us as we triumphantly realize the trembling hopes of the iron-makers of the olden times and the fulfillment of the prophecies of our ancient "boomers."

Geography, geology and practical experience have shown us that we have three coal fields in Alabama—the Warrior, Cahaba and Coosa—besides the mountain coal. Investigation and study of these have prepared the public mind to calculate somewhat upon the quantity of coal to be drawn upon for iron and steel making, and much has been said and written about the scarcity of iron ores in some parts of the world and how rapidly it is being used. This has stimulated some of our people to investigate as to whether or not our available supply for the future is sufficient to perpetuate our growth and sustain us in the firm belief that we will become the world's most important factor in the making of iron and steel. That investigation is being made with the most astonishing and gratifying results. By reason of the two great liberal railway systems—the Louisville &

Nashville and the Southern—we are in close union with the Anniston district, as well as the northwestern portion of our mother State, Georgia, the wealth of whose undeveloped mines as it shall respond to the ring of the miner's pick will startle into glad wakefulness the quiet dreams of our neighbors and amaze the world.

By the aid of the Louisville & Nashville Railway, whose friendly and transforming touch has in so many places substituted activity, prosperity and life for lethargy, poverty and commercial death, and by the added assistance of the great Southern Railway system, which since its reorganization has manifested the same spirit of generosity and development which has characterized the former, North Alabama and Northwest Georgia will present a most inviting spectacle for capital, provoking the investment of many, exciting the envy of some and claiming the admiration of all.

Georgia, in no very large territory, has vast quantities of ore—more than we have in Alabama. Her deposits in the shape of specular and red hematite are of so high a grade as to almost pass for Bessemer ore. These, unlike the ordinary brown ores, which are usually of a pocket nature, are in large deposits, which can

be seen from the top of the highest hills to the valleys below, in many places exposed by wells fifty feet below the water level of the valleys, disclosing the vastness of the supply. Were I called upon to compute the quantity of these ores, which lie in Georgia along the northeastern boundary of Alabama, I could only say that they, together with the Alabama supply, could furnish ten tons of rich ore for every ton of coking coal in our entire district. In view of all these facts, which I have but feebly presented, one can safely predict that with the bringing together by our liberal railways the coal of Alabama and the ore of Georgia at a place best adapted and most desirable for such a union, there will spring up along the border line a volume of business and an aggregation of population and wealth which will not only lessen the burden of taxation in the two States and furnish a certain and unfailing product to supply the world, but will be fruitful of profits and interests that shall focalize and localize in the establishment and upbuilding of a grand industrial city, an appropriate name for which would be the Birmingham of Georgia.

H. F. De Bardeleben

SOUTHERN IRON AND COAL PROPERTIES.

Intrinsic Values Doubled by Changed Conditions.

By Archer Brown of New York.

Complying with your request for some comments on the outlook for the growth and prosperity of the iron interests in the South, I would say that the turn in the long lane has surely been reached. You are aware that during the years which followed the panic Lake Superior ores dropped to so low a point that they were able, in connection with cheap coke, to dominate the entire country. Furnaces as far south as the Ohio river and as far east as the seaboard used lake ores almost entirely and produced iron at a cost which even the favored sections of the South could scarcely compete with. The change wrought in the last twelve months has been great and I believe permanent.

The lake ore regions have very largely come into the possession or under control of huge iron and steel consolidations. The prices of ores for the coming year will be about 100 per cent. higher than those which the furnaces have enjoyed during the current year. This rise is not an arbitrary advance by the owners of the ore. The greater part of it is taken up in higher royalties, higher wages at the mines, higher transportation from mines to lake ports, higher vessel rates to lower ports and higher unloading charges at such ports. In short, everybody connected with the movement, from the ground on Mesabi or Marquette range to the furnace in Ohio or Pennsylvania, expects to get more out of it.

In coke much the same thing has taken place. Connellsburg coke, which has sold as low as ninety cents at the ovens, is now worth \$2.75, and it is so far contracted for next year that there is little probability that this price will break for many months to come. Ohio and Pennsylvania furnaces, therefore, have before them a prospect of a very great advance in raw materials founded on conditions that will not yield easily even if prices of pig-iron go off again.

The advance in cost of pig-iron at Northern furnaces will probably rule

\$2 per ton higher up to July 1, 1900, owing to the rise in wages and fuel. After July, 1900, on the new basis of ore, the cost will probably average \$5 per ton higher than during the current year. The furnace that in the last six months of 1900 makes its pig-iron under \$14 per ton will be the exception. With many the cost will run to \$16.

Turning now to the South, the enormous influence of this condition of things upon Southern properties can scarcely be appreciated until it is more fully felt. The value of every good ore mine and coal mine is doubled by it. While Southern furnaces suffered probably more than the Northern from the effects of the lean years after the panic, they will profit more than the Northern by the improved conditions. The reason for this is not hard to understand. The large Southern companies control their raw materials, and when they have made the proper advance in wages to meet the changed conditions of the times they are practically through with the increase of cost. I should suppose that \$2 per ton ought to cover this increase, so that after the middle of next year Southern pig-iron makers will, comparatively speaking, have an advantage of \$3 per ton over their Northern rivals.

The effect of this upon ore and coal-mining corporations, transportation, furnace interests, etc., in the Southern States will be more and more felt as the months of 1900 pass. There has been so much disaster connected with past investments in Southern mineral, furnace and town undertakings that it is not surprising if the financial public both North and South will be slow to realize and accept the new conditions. It will come in time, however, and instead of skepticism there will be eagerness to go into enterprises that have substantial backing that look to development of mineral resources. It would be interesting to dwell at some length on the reasons which produce so much disaster in the South in the years

following the panic. There is no space here for this, but mention might be made of two principal causes which will need to be carefully avoided if future undertakings are to prosper. The first is insufficient capital for the things attempted, and the second is inexperienced or inefficient management. Those who propose to put their money hereafter in mines, furnaces or like ventures will do well to see to it that capital is provided

at the outset ample for all needs, and also that the people who are to handle their money and on whom success of the project depends shall be thoroughly experienced, honest and capable.

Archer Brown

AMERICA'S GREAT AWAKENING.

As pertinent a question as the business man can now ask is, Is this a great, good year that is going to stand by itself, or is it the beginning of a great period? Hope naturally would answer that this is the commencement of a great period. And hope, it seems to the writer, is justified in this reply. This year came unexpectedly. It came with so little warning that in spite of all our boasted natural resources, in spite of the vastness of our productive capacity, we have not been able to keep pace with it. In the iron and steel trades the demand was so great that prices for material for quick delivery went to a figure that was absurdly high, bearing no legitimate proportion to the cost of manufacture. Two years ago it seemed as if America were hopelessly cursed with overproduction. We apparently could make of everything more than we ourselves needed.

Then came the export trade. Probably the course of the export trade in Alabama iron is typical of several other branches of industry. In 1896 and 1897 there were great and growing stocks of iron on hand in the yards of the Southern furnaces. All at once a demand for this iron came from Europe, and in the course of two years this trade grew to phenomenal dimensions. Probably no great trade was ever developed more swiftly and satisfactorily than this. It was a thoroughly legitimate business. Our iron met with favor abroad, and as the foreigners paid as much, if not more, money than could be obtained in America, it was a trade that to the Southern ironmasters seemed to come at a providential time. But early in this year America suddenly woke to the fact that the foreigners had taken all the available surplus. The stocks of iron which had seemed to local consumers to be an inexhaustible reserve stock from which they could draw at pleasure were wiped out. Business here all at once doubled, and the demand for iron was so great that the furnaces were not able to adequately meet it. What followed is a matter of too recent history to need repetition.

But because this has been an unusual year is there any reason to believe that we are doomed to soon fall back into the slough from which we have so recently risen? No. On the contrary, there is every reason to believe that we shall go on, and that 1899 has simply ushered in a period of immense though entirely natural activity and of long-continued prosperity.

The Spanish war was like a strong stimulant to this nation; or rather it was like the bugle-blast that waked the sleeping princess to life again. We had been getting into a bad way, and the pessimist had been much in evidence. When the pessimist has his dreary way enterprise and energy stop. But the war showed us all our latent powers. It showed us that in a few weeks we could arm and equip an army. It showed us that we had a navy that in two battles could annihilate the fleets of the enemy

and go through the battles unscathed. It gave us an amount of self-confidence and of assurance in our powers and our destiny that made a laughing-stock of the pessimist. And with the rejuvenation of the optimist came the business expansion of 1890. This expansion is only at its beginning. We have come out of the war as a world-power. We have acquired millions of miles of new territory, and have added vastly not only to our responsibilities, but to our opportunities. The little but noisy clique of those who refuse to accept the results of the war as final amount to nothing. To use one of Horace Greely's illustrations, they are like balky mules on a ferry-boat. They balk and back and think they are doing something, but the ferry-boat goes right on, and they go with it willy nilly. Our new possessions give us an immense area for industrial development. They give to the daring and enterprising spirits that have made America what it is a new outlet, a new and wonderful field. And we are certainly going to rise to the full limit not only of our responsibilities but of our opportunities.

We are as good and true men in this generation as in the former generations; that is, we are the sons of our fathers, and we shall do the work that we now have to do so well that our sons in their turn will hold us in reverence as we hold our ancestors. We have had this wonderful national awakening, and it is not for one year, but for many. We have been so busy attending to our needs at home that of late we have had to neglect the export trade. But a week ago 2000 tons of Birmingham (Ala.) iron were sold at the full current prices for shipment to England. We are not going to allow it to slip away from us. We are going to cultivate it and make it, not a matter of chance, not a mere temporary convenience, but a permanent thing. And we shall expand at home as well as abroad. There is no question as to this. Of course we may have ups and downs, but the downs appear far off, and will not be as severe in the future as they have been in the past.

MATTHEW ADDY & CO.
Cincinnati, Ohio.

Coal on the Mississippi.

During the year ended August 1, according to a letter to the Manufacturers' Record by Mr. George Clifton, agent at Greenville, Miss., the Alabama Black Coal Co. loaded at Greenville into barges for the New Orleans trade 75,262 tons of coal from Walker county, Alabama. This amounted to about 150 barge loads. The present equipment on the river consists of seventy-two barges, a large tow-boat and one steam tug. There are now under way 100 additional barges. The Greenville tipple is capable of loading three 500-ton barges in ten hours. The tipple is being improved, and the company expects to increase its tonnage in the New Orleans market this year fully 300 per cent.

FUTURE OF SOUTHERN LUMBER RESOURCES.

By B. E. Fernow, Director of the New York State College of Forestry.

The great activity in all enterprises which followed the stagnation of business incident to the panic of 1893—one of those periodic panics which are natural to a country with such immense speculative investments as ours—has asserted itself in the lumber business even more than in any other. Especially has greater activity than ever before become noticeable in investments for forest properties located in the Southern States. To the writer, who has for several years taken pains to point out that the future supplies of our enormous consumption of building materials must soon come from the South, this active movement was no surprise. The surprise was rather that the movement had not set in earlier. The reason for this movement lies in the simple fact that at last the predictions of the so-called "denudatics," who foresaw the speedy exhaustion of coniferous woods in the North, had been recognized as on the point of coming true.

We express thus cautiously the fact that the white-pine supplies of our great lumbering States of Michigan, Wisconsin and Minnesota, with Canada thrown in, are seriously declining, in order not to offend our friends, the great lumber trade journals, which had stoutly maintained the inexhaustibility of these supplies. They are not gone yet; white pine is king still, but the end of his reign is already visible.

The writer, in Senate document No. 40, Fifty-fifth Congress, first session, has discussed the situation at length and upon the basis of statistics and other information that was available, and came to the conclusion that the total of coniferous growth in the Northern States, if we lean to extravagance rather than understatement, cannot amount to more than 100,000,000,000 feet B. M., of which less than half is pine, to satisfy a cut of at least eighteen to twenty billion feet per annum, as at present furnished by that resource. To be sure, this does not mean that in less than six years every stick of pine, spruce and hemlock will have been cut, but it does mean that one mill after another must shut down, as they actually do; that from year to year the cut must become smaller, and the difference must be made up from elsewhere. Canada has been looked to for help, but as far as our knowledge of her supplies goes, her own present consumption alone will exhaust them in less than fifteen years.

Hence, there are only two other sources of supply to be considered, namely, the Southern States and Pacific coast, and as some visionary statisticians will have it, Alaska. The writer has had an opportunity this summer to see and judge for himself as to the likelihood of Alaska ever supplying the market with wood material, and his judgment is entirely negative. The Alaskan forests of the coast, which alone are and ever will be accessible, are found on the islands of the Alexander archipelago and a narrow strip, rarely more than ten miles in width, of the mainland as far as Cook's Inlet or Kadiak Island.

Not only is their area limited certainly to less than 15,000 square miles, but good logging timber is scarce, occurring only here and there in patches; the rest is branchy and knotty. It is not, as has usually been stated, a spruce forest, but a hemlock forest, with spruce intermixed only to the extent of about 20 per cent. In the average, a third species, the Alaska cedar, being a more or less rare tree.

Under present conditions labor is so high, the country so rough for logging and

the material comparatively so inferior that even the ties and trestle timbers for the first and only railroad of Alaska, from Skagway over White Pass to Lake Linderman, the Yukon & White Pass Railroad, although running through wooded country, were imported from Puget Sound and California. Perhaps the paper pulp mills of the future may find their supplies here.

A much more important competitor for the market are the magnificent forests of the Puget Sound country and of Northern California and Oregon. Made up almost entirely of coniferous material of varied and excellent qualities, furnishing long and clear sticks, such as no other country in the world has to show, its only disadvantage is the distance from the centers of consumption, in addition to the absence of cheap labor, because being still not densely settled. Although there are areas which cut 200,000 feet and much more to the acre, yet these are interspersed with timber of inferior dimensions and scrub growth, so that the available material under present economic conditions is less than would have been expected. The writer's estimate of 1,000,000,000 feet of standing supplies in the three States, made a few years ago, appears, from compilations of cruiser's reports, made by the United States Geological Survey, to have been an overestimate of more than 25 per cent.

We come, then, to the conclusion that before these resources can become fairly available for Eastern markets they will not only have been largely frittered away in the attempt of making profits out of their best cuts, but they will find it difficult to compete at present with the supplies from the Southern States, which are conveniently located to market and can be exploited with cheap labor.

In the South lies the key to the situation of the future lumber market, and, according to the manner in which what is left to her of her enormous timber wealth will be managed and exploited, she may or may not control the market forever. That means the exploiting must be carried on differently from what it has been in the past, when the ambition was to get rid of the timber as fast as possible, to make the cut each year the largest possible, to get the cash out of the speculative investment as quickly as possible, instead of looking for continuous revenue from a permanent investment; making the cut as large as the lumbered area produces annually, thereby stiffening prices rather than undercutting them, and making efforts to reproduce and protect against fire and other damage the reproduced new crop—in short, applying the principles of forestry in the exploitation and management of this timber wealth.

I am aware that life is short and that the sentiment of the majority is "Let the future take care of itself—we live for the present," and hence there seems little hope in advocating a policy which prescribes economy for the present—the foregoing of a present higher revenue for the sake of a continuous and perhaps only in the end better revenue. Yet I am also aware of the fact that with the rapid development of our resources in the past large fortunes have been amassed by capital which seeks safe permanent investments rather than rapid and high returns from speculative investments. If such capital can be attracted to invest in Southern forest properties, and if such capitalists can be made to see that such properties can be so managed as to earn forever a

steady, sure, reasonable and finally growing interest charge, then the future control of the lumber market by the Southern States would be assured.

It is with this conviction in view, viz., that only large capital and persons interested in continuous enterprise can profitably carry on the forestry business, that the writer has advocated the formation of trusts to take hold of the forest resources and manage them for continuous revenue—trusts established not to exploit the resource and the public by suppressing competition and creating monopoly, but to secure the cheapness of production which comes from consolidation in business management and from continuity of investment.

To attract such capital of permanent investors, rather than speculators, the States themselves can do a good deal by proper efforts to secure such forest properties against damage from fires, theft and other molestation, and making it safe to invest in them. The natural conditions and geographical location of these forest resources are at least as favorable as those of the North, and in some respects more so. There are large areas which by the nature of their soil are destined to be devoted to wood growth rather than agriculture. The climate is most generous, reproduction easy and growth rapid; the species adapted to the climate even more varied than in the North, and their quality such as to supply all wants.

The most important, most valuable staple, one which has made the Southern forests famous under the name of pitch pine, or Georgia pine, all over the world, is, of course, the long-leaf pine, which stands unexcelled as a building material for heavy construction. Its area is limited to the coast, from North Carolina into Louisiana, in a belt of rarely more than 125 miles in width, with two important smaller areas of 2000 and 5000 square miles, respectively, west of the Mississippi river in Louisiana and Texas. It is here that the largest amount of virgin timber is to be found, although the States of Alabama and Mississippi can boast still of large uncut areas. The Cuban pine, in every respect as good material as the long-leaf, accompanies it along the shore, and, as it reproduces more easily, and especially escapes the fire more easily, is an important factor for the future.

There are two other pines, which in the market are probably rarely distinguished, that furnish less hard and heavy wood for house finish and smaller dimensions in building—the short-leaf and the loblolly pines, generally known as North Carolina pine, the milling of this staple being there most fully developed, although all the States produce this material from Virginia (and New Jersey as regards short-leaf pine) to Arkansas, Texas and Missouri (the latter has only short-leaf pine). Its best development is really found at the western limit.

Altogether an area of somewhat less than 90,000,000 acres contains these pines, within which much less than 200,000,000 feet of merchantable material may be found, while the present cut can hardly be less than eight to ten billion feet. A reduction in the log diameter from the present standard of eight to ten inches may increase the supply by one-third.

In addition to these two main staples of coniferous supplies, there is at least one other conifer that plays a role in the market, namely, the bald cypress, which occupies swampy locations from Virginia to Texas. The cypress industry is most fully developed in Louisiana, owing to a well-organized consolidation of its interests, but the cypress is found just as well developed in the Eastern States. Its supplies are limited, and more than 500,000,

000 feet of annual cut will no doubt soon exhaust them. Since its reproduction is slow and difficult in the swamps which it frequents, it will probably disappear altogether from the market when the virgin supplies are used up.

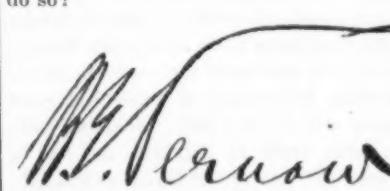
I have laid stress mainly on the coniferous wood materials because in the enormous consumption of our country, amounting annually to not far from 40,000,000,000 feet B. M. of lumber and other material requiring log and bolt sizes, three-quarters comes from this class of trees. It is our most important requirement. Yet the resource of broad-leaved trees—hardwoods, so called—which the Southern States can boast of is even greater and more varied than its pines. In fact, although with the decrease of the white pine in the Northern States hardwood lumbering has increased in those States, the South still furnishes probably the bulk of our present requirements.

The following estimate of the annual cut from Southern forests was made by the writer in connection with the forestry exhibit at Atlanta in 1895, and, as it has never been published, may find a place here:

Lumber product 1895.	
Long-leaf pine.....	4,000,000,000 feet, B. M.
Short-leaf (loblolly).....	3,000,000,000 "
Cypress.....	500,000,000 "
Red cedar.....	10,000,000 "
Oak.....	2,000,000,000 "
Poplar.....	500,000,000 "
Cottonwood.....	250,000,000 "
Ash.....	225,000,000 "
Hickory.....	150,000,000 "
Red gum.....	35,000,000 "
Walnut.....	10,000,000 "
Cherry.....	10,000,000 "
All other.....	10,000,000 "
	10,700,000,000 "

It will be seen that two-thirds of the log output is coniferous; that of the hardwood output more than one-half is oak; that with a total estimated lumber production of 40,000,000,000 feet for the country at large, the South furnished then only a little over one-quarter, less than one-third of conifer consumption and about one-quarter of the hardwood market, the two hardwood States, Kentucky and Tennessee, cutting altogether more material than the entire pine section. The States at that time, considering the entire output of wood materials, firewood included, showed about the following position: Tennessee, Kentucky, North Carolina, Alabama, Georgia, Texas, Mississippi, Arkansas, Missouri, South Carolina, West Virginia, Louisiana, Florida.

The total output of Southern mills in 1880 was valued at only \$38,116,000, while the value of the lumber product in 1890, with a saw-mill capacity of round 60,000,000 feet daily, was \$105,575,819, a sum greater than any other line of products save agricultural crops, the mineral output being valued at less than \$60,000,000. If we add to the lumber output the value of naval stores with \$8,000,000, and estimate the value of fuel, fencing, tie and other minor materials at round \$200,000,000, the total value of the annual forest production will hardly fall below that of the greatest product of the South, the cotton crop, which for 1889 was valued at \$318,317,973. Is it not apparent that if such a resource can be made permanently producing, all efforts should be made to do so?



The tobacco receipts at Greeneville, Tenn., reached 75,000 pounds in one day last week.

A big real-estate convention will be held at Fort Worth, Texas, on January 16.

THE YELLOW-PINE REGION OF THE GULF.

By W. J. Kilduff of Alabama.

Twenty years ago the yellow-pine industry of the central Gulf coast was in its infancy. In those days the facilities for turning the raw material into the finished product were slow and expensive, and while prices were in accordance, the profits were not great. But just now high prices prevail. Up-to-date improvements and methods have reduced the cost of manufacture to the minimum, and the yellow-pine mill man is reaping his long-delayed harvest.

For many years this industry, more than all others, was retarded by the condition of the harbors of the Gulf coast. Up to a comparatively recent date these harbors were just as Columbus found them, and the enormous expense of getting the finished product to the ship's side retarded the development of the industry. Each saw-mill had its fleet of "lighters," to convey the lumber down to the shipping, below the city, and a picturesque sight was the brave little tug pushing along, with the Leviathan of "wood goods" stretching far out in its wake. In fact, those were the picturesque days of the yellow-pine industry. Today we have the prose of the business—prosaic, but profitable.

Twenty years ago enterprise laid her magic hand upon this yellow-pine country, and that touch throbs and pulsates today. Time was when King Cotton reigned here on these sunny shores, and the condition of this country after sixty years of his sovereignty was not very satisfactory, to put it mildly. In the year of our Lord 1890 we realize that the old king has abdicated and a new one reigns.

He rears his mighty head aloft in the forests of the Gulf coast, and under his beneficent shadows a new people has arisen. The past may have "filled its appointed place and accomplished its appointed work," but the South is now living in the present. And the most important factor in that present is the pine log. He rears his mighty head aloft in the forests of the Gulf coast, and under his beneficent shadows a new people has arisen. The past may have "filled its appointed place and accomplished its appointed work," but the South is now living in the present. And the most important factor in that present is the pine log. The element that the pine log has introduced into the South is the element that the country has long needed. There is room and a welcome in the South for the "man with the hoe," but, when all is said, the man with the saw brings about a better condition of things.

This fact impresses one most forcibly during a day's ride through Southeastern Mississippi. Here entire towns seem to have sprung up in a night. And here, set down amidst the as yet unimproved hovels of the "poor white" native and the negro laborer, we almost invariably find the charming home of the man who has made this town possible. And within the doors of this home is the wealth and the broad culture and the force of character that is going to revolutionize this entire country. In the lumber business, more than in any other, the man behind the money stays with it, and has not invested solely through agents and speculators. The majority of the yellow-pine saw-mill men are the sons of those men who were the pioneers in the white-pine forests, those men who have grown rich and spent a lifetime "feeding the unweared teeth of the saw-mill," and as those pioneers have blazed the way for the great cities of the Northwest, so the sons are blazing a pathway through the yellow-pine country today. Mississippi alone produces 350,000,000 feet of lumber annually, and one day's ride through this country impresses one with another fact. It is that the yellow-pine industry is as yet only in its incipiency.

As Lowell would say, "the war between man and the forest is fierce now, but it will be a long while yet before the hatchet is buried." Through these forests the Gulf & Ship Island Railroad, answering to the master touch of S. S. Bullock, is slowly but surely threading its way. Each day opens up new vistas of timber, from which as yet not even the edges have been nibbled away.

Colonel Killebrew, in his recent memorable speech before the Southern Industrial Convention, summed up the situation when he said of the South: "Its timbers are much more valuable than those in any other part of North America, except Canada." The timber belt of the South, penetrated by the Louisville & Nashville, the Mobile & Ohio and the Southern railroads, lies directly south of the cotton belt and extends to the Gulf of Mexico. Of this timber yellow pine predominates, and this is of the long-leaf variety so favorably known in every quarter of the globe. But choice bodies of hardwoods also abound along the rivers and streams of this territory, and this is now attracting the attention of practical lumbermen from the North and West. The year 1890 marks an epoch in the hardwood trade of this country. One concern alone has invested over \$100,000. They have erected three modern mills on the Alabama river, fifty miles north of Mobile, and the product finds a cheap and satisfactory outlet through Mobile. During the month of October this concern exported over 2,000,000 feet of hardwoods, thus bringing Mobile to the front as the banner hardwood port of the Gulf coast.

Another source of wealth in this section is the cypress timber. The railroads have fostered this industry as carefully as a mother would tend a new-born babe, and the result is that the product now finds its way to the markets of the North and East, and the trade is very profitable.

Not so very long ago cypress logs were considered absolutely worthless, and the writer well remembers when he has turned numbers of these despised logs adrift from the boom, when they had "come down" in a raft of pine logs. But now "the stone that the builders rejected has become the corner-stone." In those days, in the vicinity of Mobile, numbers of old darkies (no one ever saw a negro working in cypress whose beard and "wool" did not resemble the moss that hangs from its branches) made a precarious livelihood manufacturing the article known as the "split shingle." They would locate their "yard" on a sunny spot of the river bank, and here, with the blue dome of an overhanging bough or a huge piece of cypress bark for a roof, a thriving business was carried on. Here the logs picked up adrift were "rived" into shingles, one-half inch, more or less, at the butt, and eighteen long and five inches wide. The combined "output" of these would reach, at a liberal estimate, possibly 20,000 shingles per day. The evolution of this industry is now five mammoth mills, with vast capital invested, and an output of over a million shingles per day.

There are few cypress lumber mills in Alabama, but in Louisiana cypress is manufactured into lumber in large quantities. Vast sums of money is invested in these mills, as the equipment, being much heavier than the average yellow-pine mill, is correspondingly expensive. Millions of acres of cypress land is found in Louisiana alone, much of this being the famous "black" cypress, the most lasting variety known.

Every railroad penetrating the yellow-pine country has made large improvements during the year. Over \$1,000,000 has been expended by the Louisville & Nashville at Mobile alone. One of the most important events of the year has been the entrance of the Southern Railway into Mobile. The influence of this upon the commerce of that port will be manifold. Another important movement has been the extension of the Mobile & Ohio Railroad to the Gulf. Thus the fish and oysters, which in these waters rival any in the world, will find a direct route to the markets of the West. Already the output of these products is increasing each month, two large factories for the canning of oysters being now in constant operation, their entire output finding a ready sale in the Western cities, while others are contemplated.

It is in the line of such enterprises that the Mobile & Ohio has been a benefactor to the Gulf coast. In fact, much of the interest that has been awakened in the resources of the South is due to the enterprise of this road.

The Louisville & Nashville Railroad is probably handling more forest products just now than at any previous time in its history. This is particularly true of that part of the line south of Mobile, as the main line connects at Gulfport, Miss., with the Gulf & Ship Island Railroad, thus draining that territory. Solid trains of lumber pass over this road daily, coming from the territory south of Mobile and from the large mills in the interior of the State.

The market conditions at Mobile, Pensacola and Pascagoula, as well as the whole Gulf coast, may be summed up as follows: High prices, small stocks and demand far in advance of the supply. At all of these ports the exports of lumber and timber are limited only by the output of the mills in operation, and it is no exaggeration to say that the mills are from two to four months behind with their orders. This product goes largely to England and the Continent, Mexico, South and Central America, West Indies and Sandwich Islands, while South Africa has been one of our best customers.

A recent visit to Pensacola forces upon us the realization of the advantages of that wonderful harbor, which could take in the commerce of a world. The custom-house figures here are indisputable evidence of Pensacola's prosperity:

Calendar year 1895.....	\$3,718,127
Calendar year 1896.....	6,515,635
Calendar year 1897.....	8,772,082
Calendar year 1898.....	9,872,950
Fiscal year ending June 30, 1899.....	14,196,375

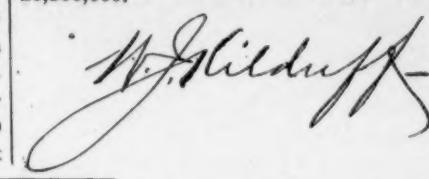
These figures are for exports to foreign ports only. Twelve large steamships were taking on cargoes of "wood goods" for foreign countries, and this number is being augmented each day.

Mobile's lumber and timber exports have also increased to a marked degree. The shipments from this port for the year ending September 1, 1899, amounted to 210,299,508 superficial feet. These figures show an increase of 71,991,683 superficial feet over those of last year. Part of this increase is probably due to the new Mobile, Jackson & Kansas City Railroad, which opens up a heavily timbered country for a distance of fifty miles west of Mobile, and the product of twelve mills located thereon finds its outlet through the Gulf City.

The harbor of Pascagoula, through which passes the commerce of the Pascagoula district, is being deepened to seventeen feet. The recent appropriation from the government will enable the work to be carried out speedily, and two powerful dredges are now employed. We will not dwell upon the impetus that deep water will give the port of Pascagoula, as it is well known that the great lumber mills

of Moss Point and Scranton, whose product must find an outlet through this port, have always been greatly hampered by the lack of deep water. Through this port, according to the custom-house figures, the exports of lumber and timber for the fiscal year ending June 30 amounted to 136,000,000 superficial feet

by water, while the rail shipments were 10,500,000.



THE LUMBER OUTLOOK IN THE CAROLINA BELT.

By Hugh Wiley.

At no time in the history of the lumber industry of this country has the general market possessed so many remarkable features, and in its development presenting a situation so full of promise for the future. The close of the commercial year of 1898-1899 presented a volume of business far in excess of previous years, while the list of values at the close was firm and hardening, with no cessation in the demand, which for the past six months has been of a most pronounced character.

The American lumberman is always enterprising, and embracing in the plans and scope of his business all markets wherein his product may find ready sale, so during the past year there has been, as always in the history of the industry, no pause in progress.

While the activity has been of a general character, the public eye has seemed to rest upon sections yet to be developed, and the timber lands of the South and Southwest have attracted lumbermen from the far North and Northwest in search of new fields of operation. Natural causes have prompted the investor to leave sections once virgin forests, but now culled of their richness in timber, and to establish saw-mill plants in territories hitherto unknown, and which promise rich returns in this great era of development.

There is perhaps no other industry which responds so readily to general business conditions as that of the lumber trade. This has been especially true of the course of the market during the present year now about closing. The season of 1898 was one of unusually limited volume, with the margin of profits on all grades and dimensions extremely narrow. The first pulsations of commercial and industrial improvement throughout the country at the close of the Spanish-American war were sensibly felt in the lumber industry of Baltimore, and the general features of the local market became brighter in almost every avenue of the industry.

Baltimore lumbermen have long been known as among the most enterprising of any engaged in the industry, and millions of capital from the Monumental City has found investment in Virginia, West Virginia, Tennessee, Georgia and the Carolinas.

The great factor, however, which has long been at work in molding the future of the lumber trade of Baltimore is its close relation to the port of Norfolk, which is the great distributing point for the North Carolina pine belt.

As far as the lumber industry is concerned, the interests of Baltimore and Norfolk are in many respects identical. Millions of Baltimore capital have been invested in saw-mills and timber lands in Norfolk and various sections of Virginia and Eastern Carolina, and when one considers that over 600,000,000 feet of North Carolina pine will have been distributed from Norfolk during the present year, the close commercial and industrial alliance between the two cities is readily seen. Of this enormous output the account sales of a large portion are audited in Baltimore.

Of the various combines owning mills in Norfolk and adjacent points, with headquarters in Baltimore, the principal ones are as follows: Tunis Lumber Co., Surrey Lumber Co., Greenleaf Johnson Co., Ryland & Brooks Lumber Co., Dill & Rohle, George F. Sloan & Bro. and the Rowland Lumber Co.

The above companies are not all that contribute to the commercial importance of Baltimore and Norfolk. Many smaller ones have been recently organized, and are now developing valuable timber lands in Virginia and Eastern Carolina. The almost inestimable value of these properties is more fully appreciated by their owners since the formation and more recent reorganization of the North Carolina Pine Association. At Norfolk, during the fall of 1898, the proposition was made by a Northern syndicate to purchase the milling plants and lands owned by the association. Baltimore as well as Norfolk lumbermen saw in the future promising indications of better profits, and with signs of the prosperous era which was about to dawn upon the country, concluded to cherish more closely their valuable holdings. After tedious and lengthy negotiations and various proposals from the syndicate, the deal was declared off, and the ports of Baltimore and Norfolk are now enjoying the profits of a most valuable industry.

The operations of Baltimore lumbermen in the North Carolina pine belt during the present year have been characterized by the most successful results. One can form an idea of the extent of the business in this particular avenue of Baltimore's lumber trade when it is estimated that the joint output of mills controlled by local manufacturers will reach nearly 200,000,000 feet for the present year. It may also be stated that while Baltimore manufacturers are well supplied with timber and have valuable tracts yet untouched, large amounts of capital have during the present year been invested in other sections of the country abounding in long-leaf pine and hardwoods.

The course of the market for North Carolina pine during the present year has been steadily upward, values appreciating under a pronounced demand, while stocks in most cases have not been allowed to accumulate. The demand at the present shows but little signs of abatement, and, indeed, indications point to an active trade for some time to come.

The Northern markets are now short in many grades and dimensions, and as the building trade and real-estate business throughout New England and sections in the Middle States are in a most prosperous condition, there is likely to be a good market for North Carolina pine for an indefinite period. It is stated that about 75 per cent. of the product in North Carolina pine lumber has been sold as far ahead as June, 1900. The market during the year has continued to advance, and prices of North Carolina pine are today from \$3 to \$4 higher for the average cut than for the same date last year. The advance, however, on certain grades of

Nos. 1, 2 and 3 has been higher, the maximum reached being from \$6 to \$7. This also applies to Southern pine, of which millions of feet are handled by Baltimore lumbermen having mills in Georgia, South Carolina and Florida.

An enterprise which will have a direct bearing on the lumber trade of Norfolk, and will eventually add some important features to the lumber trade in Baltimore, is the reconstruction of that historic waterway, the Dismal Swamp canal. This enterprise, which is backed by Baltimore capital, will be of incalculable benefit to lumbermen operating in the North Carolina pine belt, and already

large lumber-towing firms of Baltimore and Philadelphia have engaged their towage via the canal. The principal advantage to be gained is the entire loading of through cargoes of lumber in North Carolina, when formerly only a part cargo could be taken on at points of shipment, besides being obliged to topload after getting into Virginia waters. Lumbermen generally estimate that the shipping tonnage at Norfolk and freightage from North Carolina will be increased fully one-half in the year 1900 by the opening up of this important waterway.

The Baltimore Lumber Exchange under its present organization has been a potent factor in molding the operations of local lumber dealers and manufacturers. The affairs of the exchange have under the present executive board been much more systematized, and under the present code of by-laws lumber dealers find their operations to a great degree much more simplified. President Dill has been untiring in his efforts to place the operations of Baltimore lumbermen before the country. To this end the Lumber Exchange prepared an exhibit, which has been placed in the National Export Exposition at Philadelphia. Lumber specimens showing the log prepared for the export trade, manufactured lumber in the rough and in its various dressed forms are all shown in a most attractive manner. A feature of this exhibit is the collection of all the usual grades, from which orders can be taken and furnished promptly. Delegates to the International Commercial Congress and hundreds of lumbermen from all parts of the country visiting the exposition pronounced the exhibit of the Baltimore Lumber Exchange as among the primary attractions, while each in his turn left his card and was duly registered. To give the Old World an idea of the plan and scope of Southern lumbermen, this exhibit is, by request of the United States commissioners, to be transferred to Paris, where, with further attractive features, it will be shown at the exposition in that city in 1900.

In the department of hardwoods the volume of business for the current year has been very satisfactory, the volume of trade showing great expansion. The demand from local as well as out-of-town buyers has continued uninterrupted, and prices have appreciated in all grades and dimensions. Stocks have not been equal to the demand, and at all milling sections in Virginia, West Virginia and Tennessee the output has failed to give Baltimore dealers sufficient to supply the urgent demand existing. Of the commercial woods handled by Baltimore lumbermen oak has advanced from \$3 to \$10 per thousand feet during the year; ash, \$5 to \$10; poplar, \$3 to \$5, and walnut, \$5 to \$10. Other woods, such as cherry, for which the demand is light, remain unchanged.

A company at Jacksonville, which has invested \$300,000, now owns all the ostriches in the United States. It has a ranch near Jacksonville, where the birds are raised for their feathers.

The Milling Possibilities of the Central South.

By W. E. Damon of Tennessee.

The States composing the Central South, together with the few States lying immediately south of them, require for annual consumption, approximately, 17,000,000 barrels of flour. That a considerable part of the wheat with which to produce this large amount of flour is not raised in the South, but must now be obtained from the North and West, is patent to even the most casual observer, but the extent of the actual shortage is scarcely realized by the well-informed.

The object of this article is twofold. First, I desire to call the attention of the Southern farmer to the fact that the shortage of the grain crop is not only a condition that is very much against his individual interests, but that it is militating against the best interests of the South. Second, that the milling capacity of the South is not equal to the requirements of that section, and that if the farmer persists in allowing the deficit in grain to continue that is no reason why the grain should not be milled in the community in which it is consumed, even if the grain is obtained elsewhere. In the annexed table I give figures for those States comprising the territory mentioned. They are based on the crop reports of the year 1897. The reports for 1898 are not at hand. Owing to the severe weather in the early spring, the yields for 1899 were very much less. The calculations are based upon the estimates of population furnished by the governors of the respective States for 1899.

	Wheat Consumed.	Production.	Deficit.	Surplus.
	Bushels.	Bushels.	Bushels.	Bushels.
Ala....	302,860	7,200,000	6,897,140	.....
Fla....	.....	2,000,000	2,000,000	.....
Ga....	1,633,946	8,400,000	6,766,054	.....
Ky....	12,283,343	8,800,000	.....	3,483,343
La....	.....	5,000,000	5,000,000	.....
Md....	12,277,056	6,480,000	.....	5,797,056
Miss....	12,370	6,500,000	6,487,630	.....
N. C....	4,169,860	8,000,000	3,830,320	.....
S. C....	757,726	5,200,000	4,442,274	.....
Tenn....	10,652,448	8,000,000	.....	2,052,000
Va....	8,451,864	7,100,000	.....	1,353,864
W. Va.	5,833,431	4,026,000	.....	1,863,431
	55,824,914	76,700,000	35,423,418	14,552,694
	55,824,914			
Tot. deficit in bus.	20,875,086			

It will be noted that the deficit is in the seven cotton-growing States, while each of the non-cotton-growing States has a surplus, though exceedingly small. Thus it will be seen that this portion of the South is paying tribute to the other sections, and without the shadow of an excuse.

The seven cotton-growing States included in the boundaries of the territory stated are contributing barely 813,652 acres to wheat, whereas, if they would draw over 4,000,000 acres from the cotton area they would produce their bread and at the same time realize much more for the cotton obtained from the reduced acreage.

It is nonsense to meet in conventions and pass resolutions to raise less cotton without pointing out a means by which the land usually required for the purpose of cotton culture can be otherwise profitably employed. Let "raise more wheat" be the motto and the proper curtailment of the cotton crop will be accomplished.

I was forcibly impressed by a statement made by Col. J. B. Killebrew in a recent article on wheat culture, in which he compared the prices of wheat at the points of production, distribution and consumption. Today wheat is selling at some points in the Northwest at thirty-eight cents; in Chicago, sixty-five and seven-eighth cents; in Nashville, seventy-two cents; in Atlanta, about eighty cents. The difference in flour is even greater,

because of the increased charges for transportation.

If the Northwest can raise wheat and sell it for thirty-eight cents—and they claim that it costs them twenty-five to thirty-five cents—will it not pay the Southern farmer to raise enough for home consumption rather than pay two or three times that amount for it?

What I have said about wheat-raising is not altogether a digression from the subject. I have endeavored to show the present status of wheat production as much for the purpose of showing the prospective mill-owner that it is a condition not likely to be maintained as to point out to the wheat-grower his duty in the premises. In fact, the leaven is already working. The farmers in all the cotton States are waking up on the subject of wheat-growing, and it is not merely talk. They are sowing wheat. Two States have perfected organizations of wheat-growers. Merchants are offering premiums for best yields. The wheat production is more than keeping pace with the building of flour mills. The 1420 flour mills in the seven cotton-growing States mentioned above which were in existence when the roller system was inaugurated in 1879, have rotted down and are past redemption. New ones will have to take their place. Perhaps the old dam may be rebuilt or repaired, but the house is tottering and the machinery antiquated. The population has increased. They even use more "wheat cake" than formerly, and it will now take many more than 1420 flour mills of fifty barrels capacity per twenty-four hours to do the work, running daylight, for, don't you know, the population of these seven States has now reached (so the governors say) 10,575,000. How many mills have they—roller mills, up-to-date mills, capable of doing first-class work? Not exceeding 200.

Here, then, are the milling possibilities of the Central South. Here is a demand for millions of dollars of the products of the mill that should be supplied by home people. The dollars should be kept at home for circulation there. Quit paying tribute. Stop the outflow of dollars to the Northern factories and farms.

By no means should the flour mills wait until the wheat is grown. They can easily exist by grinding foreign wheat. The freight being less on wheat than on flour, the mill in the South which operates on this wheat is assured of full milling profits. Indeed, the difference in the freight is in itself a handsome bonus, as the differential is rarely as little as four cents per 100 pounds, and frequently twice that amount. But this differential is clear profit only to mills of such capacity as are required to meet a purely local demand. If the finished products are re-shipped and such products come in contact with the flour from the Western mills, then this profit resulting from freight differentials is wiped out, though the usual milling profits are intact. The exceptions to this rule are in cases where "milling in transit" privileges are granted by the transportation companies. To illustrate: If the rate on wheat from Chicago to New Orleans be twenty cents per bushel, a mill located at Birmingham, obtaining the milling-in-transit privilege, can stop the wheat and, after manufacturing it into flour and feed, can re-ship it to New Orleans, the freight being the same as if it had never been unloaded between the two points, whereas, the aggregate local rates from

Chicago to Birmingham and from the latter point to New Orleans would have been prohibitive if the Birmingham mill had been trying to compete with a mill located in Chicago which was shipping its products straight through to New Orleans.

It will thus be seen that a flouring mill can exist even though it is deprived of the advantages supposed to be derived from being located either at the points of production or of consumption. But other advantages should be possessed by such a location. Cheap living, cheap fuel or a home market for part of the products would even things up nicely. It would be entirely feasible and practicable for a milling plant to operate profitably if located on a coal bank or on the bank of a never-failing stream of water if favored with proper transportation facilities, for be it known that the majority of the Western flour mills are handicapped by high-priced fuel.

In this connection the coal mines, forests and water-power of the South deserve more than passing notice. Leaving the State of Pennsylvania out of the calculation, eight out of the twelve States mentioned herein produce more than three-fourths of all the balance of the bituminous coal mined in this country, and the mines are well distributed over the territory adapted to the cultivation of wheat. The reports giving percentages of forests in each State are not at hand, but it is well known that it is largely in excess of that of any other section, and that the growth is much more rapid than in the Northern latitudes, and destroyed forests are readily duplicated. Wood for steaming purposes is easily and cheaply obtainable in nearly all localities where flour mills are or can be operated. Probably no other section of our country is more blessed with water-power. Much of it is as yet undeveloped because of the fact that fuel has been so plentiful and cheap, but in thousands of places it only needs to be harnessed to become the money-saving servant of man. Some day, possibly in the near future, the South's water-power may become her chief advantage over any other part of the country and enable her to wrest the manufacturing supremacy from a less-favored section.

A discussion of the milling possibilities of the Central South would not be complete unless some attention was given the manufacture of corn products. Here again we find the Southern planter derelict and an immense shortage existing in the production of that staple article of food for both man and beast.

The average production of corn in the United States is about twenty-five bushels per capita. The subjoined table showing the production and consumption of the States embraced in the territory under discussion will serve to point out the delinquency of the cotton-raiser, and will show that corn as well as wheat has been sacrificed upon the altar of all cotton. It will be noted that even the non-cotton States, most of them, are deficient.

	Corn Consumed.	Production.	Deficit.	Surplus.
	Bushels.	Bushels.	Bushels.	Bushels.
Ala....	30,524,328	42,200,000	12,675,672	.....
Fla....	3,810,976	12,310,000	8,999,024	.....
Ga....	32,173,064	50,000,000	17,826,936	.....
Ky....	64,485,744	52,500,000	.....	11,685,744
La....	21,575,533	30,000,000	8,424,467	.....
Md....	20,363,542	38,892,000	18,538,458	.....
Miss....	30,345,948	39,000,000	8,654,052	.....
N. C....	31,223,565	45,000,000	16,676,435	.....
S. C....	15,307,929	31,200,000	15,892,071	.....
Tenn....	68,672,533	48,000,000	.....	20,672,533
Va....	31,552,164	42,600,000	11,047,836	.....
W. Va.	17,004,298	24,120,000	7,115,702	.....
	367,129,679	460,622,000	125,850,653	32,358,332
	367,129,679			
Tot. deficit in bus.	93,492,321			

I do not mean to say that the States named have to make good the deficiency by buying the exact number of bushels

stated and paying the freight thereon. Perhaps it would be more economical to do so. Part of the amount is made up of bacon and beef, and such imports represent corn exactly as if the corn was shipped in and used to grow the hogs and cattle.

But to show the connection between the corn problem and milling. The Southern people use more corn bread than perhaps any other people. Otherwise, in the table showing the wheat deficiency, allowance would have been made for greater consumption of that article. That table was based upon an average consumption of four bushels per capita. It is estimated that the French, who use but little rye flour or meal, consume six or seven bushels of wheat.

A flour mill in the South without a corn-meal plant is a rarity. The profit accruing from this department is not inconsiderable. It is operated with comparatively small expense, and the income thereon is nearly all clear gain. As the planter buys such a large part of his feed as compared with the Western farmer, and the price is so much higher, he usually buys it in the shape of ground feed, the manufacture and sale of which constitutes a considerable part of the business of the miller, and is a source of revenue much in excess of that enjoyed by the miller in other sections of the country. Whether the farmer continues to buy his feed or shall raise it the miller will still get the profit of grinding it for him.

Perhaps the chief point of advantage possessed by the Central South over other sections in the line of flour-milling lies in the fact that the competition is less keen. But few mills, comparatively, being in operation, profits are not cut to the extent that they are where fierce fighting for trade seems to be necessary. This condition will exist for years to come or until the country becomes thickly dotted with mills. By that time, no doubt, the Nicaraguan canal will have been built, the education of the Oriental as to the uses of bread will have been completed and the vast horde of 500,000 Asiatics become possible customers for all the surplus flour that this country can produce. It has been said that that canal will make the southeastern coast of our country the front porch of the United States. At any rate, recent developments in the West Indies will open up a large trade in that section in a direct way. The indirect influences will doubtless increase our flour trade vastly along the South American coast, and mills located in this part of the country will have advantages possessed by those of no other section.

If the planters by increasing their grain crops can cause the building of 1000 mills, as well as to keep at home the \$80,000,000 annually sent away for wheat, corn and their products, or if the building of the flour mills will influence the planters to stop this deficit, more good will have been accomplished for the South than by the acceptance or rejection of any propaganda ever advocated by a political party.

W. E. Damon

In connection with a plan for a street-railway system of about forty miles from Newport News to Ocean View and by ferry to Old Point, a bill will be introduced in the Virginia legislature for the construction of a bridge across the Elizabeth river from the head of Norfolk's main street to Berkley.

Newport News, Va., exported during November goods valued at more than \$3,000,000.

PHOSPHATE FIELDS OF THE SOUTH.

Among the industries contributing to the marvelous development of the South is phosphate mining. Since the discovery of phosphate rock in South Carolina there has been but little pause in the work of mining it, and upon the markets of the world has been placed a raw material valuable in the manufacture of soluble and available phosphates.

Various extensive deposits have been discovered in different sections of the South, until at present the Southern phosphate belt is supplying in a great measure the various markets of the Old and New World.

The active development of the phosphate industry commenced in South Carolina in 1868, and for over two decades was pursued by the mining companies with more or less success. The discovery of phosphate rock in Florida in 1888 marked a new era in the industry. The output of rock in that State increased rapidly, and with the high grade of the product grew in favor both at home and abroad. In the meantime the companies at work in South Carolina were producing a first-class raw material, but were handicapped by an excessive royalty paid to the State, and although the deposits of Coosaw and other rivers were so valuable, and for which there was always an active domestic and foreign demand, a number of companies suspended operations.

Phosphate mining in South Carolina has passed through many vicissitudes and changes, the market at different periods being seriously depressed and at others enjoying its seasons of prosperity. One has only to refer to the period between 1868 and 1891 to get a definite idea of the magnitude and importance of the industry.

In March, 1870, the South Carolina legislature granted privileges to a corporation known as the River & Marine Co. to mine phosphate rock in the navigable waters of the State for twenty-one years. The Coosaw Mining Co., with a capital of \$650,000, obtained from the original grantors the exclusive right to mine in the Coosaw river, which right was confirmed by the legislature of 1876, which gave them privilege of mining for twenty-one years at a fixed royalty of \$1 per ton. This lease expired in March, 1891.

From the beginning of operations in 1868 the yearly production showed an increase until 1891, which year made an exhibit in production from all mines of 650,000 tons. The total production of rock from 1868 to 1891, inclusive, has been estimated at 5,465,557 tons, of which 3,031,000 tons were land rock and 2,434,557 tons river rock.

Of the river companies mining during the above period the Coosaw Mining Co. was one of the principal operators, and of the \$2,000,000 in royalty paid the State contributed more than one-half this amount.

The movement throughout all mining sections during the fiscal year 1890-91 was active, shipments amounting to 572,949 tons, and for 1891-92 they aggregated 548,302 tons, the foreign shipments for these two years amounting to 244,200 tons.

The cyclone in August, 1893, and the revocation by the State of the Coosaw Company's grant had a very depressing effect upon the industry of the State, the production falling off very materially. With the advent of more prosperous times throughout the country the market for South Carolina rock has improved, and both river and land mining interests are in a more satisfactory condition.

The development of the phosphate industry in Florida since its beginning in 1888 has been characterized by unusual enterprise on the part of those engaged in mining. With the discovery of this valuable product a number of companies were organized, the majority being purely speculative in their operations, while those that entered the field to mine rock for profit were materially injured by the peculiar methods of other companies, and their plans for the future seriously deranged.

The topography or character of the country necessitated for several years after rock was first discovered large expenditures of money. Facilities for mining and shipping were not of the best, and yet with all these restrictions the output contrived to increase from year to year, the quality of the product becoming each year more popular in the home and foreign market.

The annually increasing output of phosphate rock in Florida materially increased the world's supply, so much so that with excessive stocks in the various markets prices dropped, leaving a very narrow margin of profit for the miner.

A number of companies engaged in mining have passed out of existence, while others have been reorganized on a better financial basis, and are now successfully engaged in mining. During the past five years a number of new companies have been formed, notably those in the pebble district, equipped with abundant capital, while their plants are furnished with all the modern appliances for the development of their various deposits, and are now enjoying a much wider margin of profit than in former years. From September 1, 1894, to August 31, 1899, a period of five years, the shipments of Florida rock from all points aggregated 3,118,664 tons, of which 679,149 tons were domestic and 2,439,515 tons were foreign.

The fiscal year ending August 31, 1899, recorded quite an improvement in the industry. The market opened in September, 1898, at seven and one-half and eight cents a unit abroad and about \$4 to \$5 per ton at home, while at the moment rock abroad is seven and one-half to nine cents a unit and at home \$9.50 to \$10 per ton for hard rock, from 75 to 80 per cent.

Florida has vast deposits of phosphate yet undeveloped, and in the northern, western and middle sections of the State lands have been sold during the present year at prices showing a material advance.

More recently vast deposits of phosphate rock in Tennessee have been uncovered. It has been developed beyond question that phosphate deposits rich in analysis exist in immense bodies in Middle Tennessee. Though opinions differ as to the length of time these properties will be available, the deposits in the Mt. Pleasant field in Maury county, which have been most actively mined, are said by experts to have the greatest producing powers. In Hickman, Davidson, Giles, Lewis and Sumner counties phosphate rock has been found in paying quantities, and the last-named county is said to be exceedingly rich in rock of a high grade. As to the several grades of phosphate so far discovered, the Mt. Pleasant rock is sold on a guarantee of 78 per cent. of bone phosphate and a guarantee of less than 4 per cent. of iron and alumina. The blue phosphate of Hickman and other counties is sold on a guarantee of 60 per cent. of bone phosphate and to carry not over 3 per cent. iron and alumina.

The foreign shipments since the discovery of rock at Mt. Pleasant have

been increasing every year, and have already established the fact that the product has passed the experimental stage and taken its place as a high-class production in the markets of Europe. Of the production since the discovery of phosphate rock the following figures are given: Mined in 1894, 4,841 tons; in 1895, 45,324 tons; in 1896, 83,571 tons; in 1897, 142,225 tons; in 1898, 350,000 tons, and for the

present year estimated at 550,000 tons. The foreign and domestic shipments from Pensacola, Fla., from September 1, 1898, to August 31, 1899, aggregated 110,016 tons, and from Newport News, Va., for the same period 1239 tons.

The annexed tables show the shipments of phosphate rock from South Carolina and Florida ports for the five years ending August 31, 1899:

SHIPMENTS OF PHOSPHATE ROCK FROM SOUTH CAROLINA.					
Port.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Charleston.....	276,778	330,827	322,272	323,121	355,165
Beaufort.....	154,597	114,220	111,816	86,460	125,911
Tons.....	431,375	445,047	434,118	409,581	481,076
					2,201,197

SHIPMENTS OF PHOSPHATE ROCK FROM FLORIDA.					
Port.	1894-95.	1895-96.	1896-97.	1897-98.	1898-99.
Fernandina.....	121,469	161,570	161,048	180,553	245,607
Tampa.....	157,022	146,646	167,783	133,320	173,170
Punta Gorda.....	84,160	63,864	113,899	43,209	85,571
Savannah.....	67,877	67,581	99,287	70,182	68,220
Brunswick.....	41,978	31,052	35,621	53,507	71,494
Jacksonville.....	.....	.....	.....	406	406
Pensacola.....	.....	.....	.....	34,001	34,601
Key West.....	.....	.....	45,000	30,000	52,107
Railroads.....	30,900	30,000	40,000	45,000	50,000
Consumed.....	13,000	16,000	25,600	26,000	30,000
Tons.....	515,506	516,753	687,648	622,588	776,169
					3,118,664

PHOSPHATE INDUSTRY OF TENNESSEE.

By Col. J. B. Killebrew.

The United States are now supplying more than one-half of all the phosphate of the world. The quantity exported is increasing with very great rapidity, and this is due, in large part, to the very great richness of the Tennessee phosphates of the Mt. Pleasant district. For the fiscal year ending June 30, 1899, the export of fertilizers from the United States reach 822,100 tons, valued at \$6,964,365, all of which was raw phosphate rock except 41,587 tons, or about 6 per cent. of the whole. In 1889 the shipments of fertilizers and phosphate rock amounted to only 129,539 tons, valued at \$988,569. This shows an increase of over 637 per cent. within eleven years. But notwithstanding this great increase in the demand from abroad, the prices are higher now than they were in 1889. The following table gives the value per ton of fertilizers and export rock for the years named at the seaboard:

1889.....	\$7.63 per ton.
1890.....	7.11 " "
1891.....	9.40 " "
1892.....	11.56 " "
1893.....	8.54 " "
1894.....	9.28 " "
1895.....	9.09 " "
1896.....	7.78 " "
1897.....	9.44 " "
1898.....	9.16 " "
1899.....	8.34 " "

The small variation in price is remarkable when one considers the rapid increase in exportation. The amount exported in 1899 was nearly twice as great as it was the previous year, yet the difference in price amounted to only eighty-two cents per ton.

Of the high-grade Mt. Pleasant rock, fully one-half of the output of the mines now finds a profitable and increasing market in the United Kingdom, France and Germany, the latter country being our best customer, taking from the United States for the year ending June 30, 1899, 270,089 tons. The United Kingdom took, during the same period, 176,098 tons, and France 64,446 tons. The remainder of European States took 244,615 tons.

This constantly-growing demand for high-grade phosphate rock is due to the fact that one ton of such rock, analyzing from 78 to 82 per cent. of bone phosphate, will make with "filling" three tons of commercial fertilizers having the requisite amount of phosphoric acid.

Phosphate rock below 78 per cent. of bone phosphate and higher in iron and alumina than 3 per cent. is not wanted for exportation. Many large deposits of lower-grade phosphates have, within the past year, been discovered in Tennessee that are now mined for domestic con-

sumption only, but up to the present time no phosphates in Tennessee outside of the Mt. Pleasant district, except possibly a small quantity from Hickman and Perry counties, have been taken for shipment abroad.

The effect of this is easily seen. Low-grade phosphates must decline in price as new discoveries are made, while high-grade export rock will advance and the prices are likely to swell to a point much greater than they are at present. About four-fifths of the rock mined at Mt. Pleasant belongs to the export grade.

The Mt. Pleasant district is now turning out about 400,000 tons per annum. Of this amount, fully one-half is taken for exportation at prices varying from \$4 to \$5 per ton f. o. b. at Mt. Pleasant. All rock running below 78 per cent. of bone phosphate or higher than 3 per cent. of iron and alumina is sold to domestic consumers. The latter class of rock is now bringing from \$2.50 to \$3.50 per ton, with a tendency towards lower prices, while the tendency is upward for export rock.

It may be truthfully said, notwithstanding the frequent reports of large discoveries of phosphate rock in Tennessee, that outside of the Mt. Pleasant district the rock is of low quality and uncertain quantity. The highest grade outside of the Mt. Pleasant district is found in Sumner county, but this is too low in phosphoric acid by from 3 to 6 per cent. for export demand. Another extensive bed has been discovered on the McGavock farm, eight miles east of Nashville, on the Lebanon branch of the Nashville, Chattanooga & St. Louis Railway, but this also is not rich enough for exportation. Some beds are now worked near Nashville for use in the local fertilizer manufactures. It may be stated that while the phosphates in Davidson and Sumner counties belong to the Lower Silurian formation, they do not occupy the same geological horizon as the Mt. Pleasant deposits. The latter pertain to the Capitol limestone formation and the former to the Hudson or College formation. The Hudson phosphate is about 160 feet higher in its horizon than the Mt. Pleasant rock.

The subdevonian phosphates of Hickman and Lewis counties are still in demand. While these latter phosphates are not high enough in phosphoric acid to meet the usual requirements for the export demand, yet they hold an exceedingly valuable place as mixers for the high-grade rock of the Mt. Pleasant district. The latter, when treated alone with sulfuric acid, is apt to be pasty, and it does

not dry with sufficient rapidity. When mixed with the Hickman county rock before acidulation, the acid phosphate dries quickly, is pulverulent, soft and mealy.

The amount of subdevonian rock now mined averages about 3000 tons per month, or say 36,000 tons per annum. The shipments of Tennessee phosphate for the present year will approximately be as follows:

	Tons.
From the Mt. Pleasant district.....	400,000
From Hickman county.....	36,000
From Sumner and Davidson.....	10,000
From Perry county (white phosphate).....	2,000
Total.....	448,000

The output of the mines will be much greater than this, for a large quantity is now mined and stored in the Mt. Pleasant district awaiting transportation. The supply of cars has been inadequate to the demand, and the daily shipments at present are not as great as they were in May. The demand, however, continues to grow, and especially for the export rock.

The question of the consolidation of all the mines yielding export phosphate rock is arousing considerable attention. It is believed that such a consolidation will increase the price of export rock from one to two dollars per ton, while the cost of mining will be reduced fully 25 per cent, by the decrease of the number of officers and by the decrease in the price of labor brought about by destroying competition.

This year's exports, approaching 200,000 tons, at prevailing prices brings to the phosphate companies at Mt. Pleasant about \$900,000. The expense of mining and putting this on cars is \$1.50 per ton, or \$300,000, leaving a clear profit of \$600,000 on this grade. This will pay 10 per cent. interest on a capitalization of \$6,000,000. By adding another dollar to the present profit on export rock, which a consolidation would be certain to effect, the clear income to the Mt. Pleasant district, without increasing the quantity of exported rock, would reach \$800,000 per annum. Nor does this take into consideration the value of the 200,000 tons of domestic rock sold, which now brings an average of about \$3 per ton, or \$600,000. The cost of mining this and preparing it for market is \$1.10 per ton, which, deducted from the gross amount now received for the domestic rock mined in the Mt. Pleasant district, leaves a clear profit of \$380,000. Add this to the present net receipts from the export rock, and the total net receipts for the Mt. Pleasant rock for the year ending December 31, 1890, will probably reach \$980,000.

This certainly shows a wonderful development of a new industry—one for profit that is scarcely paralleled in the annals of the mining interests of the world, if we leave out gold mining. It has made Tennessee, for the present, the cynosure for the eyes of capitalists from all parts of America and Europe, and the industry will continue to grow as the merits of the rock become known to the agriculturists and horticulturists of Europe and America.

A MOST UNIQUE BUILDING.

Future Home of the Continental Trust Co.

The Continental Trust Co. was organized in January, 1890, for the transaction of a general trust business, with a capital of \$2,000,000 and a surplus of \$2,000,000. The company has been unusually successful. This is due in large measure to the influence of its directors, who were selected with great care with regard both to their financial ability and location. It has been trustee under several large mortgages, and is the financial agent for the consolidation of the cotton-duck mills, controlling 90 per cent. of the entire output of cotton duck of the United States.

The temporary offices of the company are at 11 South street, but during the coming year it will move into its permanent home, Baltimore and Calvert streets. Here, on the site of old Carroll Hall and the two adjoining buildings on Baltimore street, it will erect one of the handsomest and in some respects the most unique building in Baltimore. Workmen are now tearing down the old buildings, and the new structure will be pushed rapidly to completion. It will be twelve stories high, the first three of granite and the others of buff brick and terra-cotta. A novel feature, and one which no building in Baltimore has, is a combination refrigerating and heating plant for the purpose of supplying each room with hot and cold water and drinking water. The building will be 75x135 feet, with an L 100 feet, and the woodwork throughout, including the office rooms, will be mahogany. There will be two separate entrances, the one to the banking and trust department on Baltimore street and the office entrance on Calvert street. The company will occupy the entire first floor, and has contracted for a large armor-plate vault, which will contain the latest improved safe-deposit boxes. The building will be fireproof throughout. The architect is D. H. Burnham of Chicago, and the contractor Charles McCaul of Philadelphia.

Mr. S. Davies Warfield, postmaster of Baltimore, is president of the company; Mr. William A. Marburg, vice-president, and Mr. Frederick C. Dreyer, secretary and treasurer, while among the directors are Mr. Alexander Brown, Mr. Edwin Warfield, Mr. Harry A. Parr, Hon. Isidor Rayner, United States Senator McComas, Mr. John K. Cowen, Messrs. William A. Read and Thomas F. Ryan of New York, Myron T. Herrick of Cleveland, United States Senator Stephen B. Elkins and Mr. John Skelton Williams of Richmond.

The Baltimore Sun.

One of the firmest friends of the South, and a daily visitor in thousands of Southern homes, is the Baltimore Sun. Published in a city which has for a century had close business relations with the States below the Potomac, and which has a population with many Southern-born men among its social and business leaders, its sympathies naturally incline to the South, and much of the effective work of publicity which it accomplishes is for the benefit of that section. Its large constituency firmly attached to it has been created, though, and maintained largely by its fidelity to ideals of journalism in the face of tendencies towards degeneration hard to be resisted by weaker papers or those lacking the ability to persist on lines of principle regardless of consequences. Its traits of dignified discussion of public measures, of accuracy in gathering and publishing news, of care to preserve its columns in cleanliness, which characterize it as an exponent of healthy American journalism, commend it to an ever-increasing number of readers, while its development, keeping pace with the growth of greater newspaper resources and newspaper needs, is upon such conservative lines that men and women who have read it continuously during thirty or forty years find the same satisfaction in it today as they had when they saw their first copy of it. There is nothing hysterical about The Sun; nor does it feed demoralization by seizing the sensations of the hour as a means of compensating it for dull seasons. The Sun has no dull seasons in its news, editorial or business departments, and therefore it is content to rest its claims with readers and advertisers upon an absolutely legitimate basis.

THE SOUTH'S "ALL'S WELL."*

By Richard H. Edmonds.

Ten years ago the South fought its first skirmish in the endless battle that ever rages for the world's commercial supremacy. Its pig-iron entered the markets so long dominated by Pennsylvania furnaces, and, to the dismay of those who had affected to despise its rivalry, won a substantial victory. Alabama iron became a factor in every iron-consuming center, and from this position it could not be dis-



WAGES PAID TO FACTORY HANDS.
1880. 1890.
\$75,900,000. \$350,000,000.

lodged. About the same time Southern cotton mills were forcing their product into successful competition with the output of New England mills. But as Pennsylvania iron and steel people took refuge in the claim that the South would never advance beyond the iron-making stage, that it could never become a factor in the higher forms of finished goods and in steel-making, so the New England mills lulled themselves into a sense of security on the claim that though Southern mills might make coarse good, they could never acquire the skill and the capital needed for the finer goods. In the light of what has been accomplished within ten years, it seems very strange that such arguments as these should have done duty in so many newspapers and in so many public gatherings.



GRAIN PRODUCED—BUSHELS.
1880. 1890.
431,000,000. 736,600,000.

A Prophecy.

Judge Kelley—"Pig-Iron Kelley," as he was familiarly known—had been wiser than his people. Nearly twenty years ago he proclaimed the coming power of the South in all industrial pursuits, and heralded it not as a disaster to Pennsylvania and to New England, but as an added strength to the industrial power of the country. "The development of the South," said he, "means the enrichment of the nation." In this light the progress of the South should be watched, for while its industrial upbuilding may mean the changing of some forms of industry in other sections, there is versatility enough in our people and in our country to find a new avenue for the employment of brains and energy and capital for every one that may be closed by changing business conditions. New England may yield the sep-



RAILROAD MILEAGE.
1880. 1890.
20,600. 50,000.

ter of cotton manufacturing to the South, to the vast enrichment of the South, but New England will find new openings for its tireless energy and its accumulated capital. The South will become enormously wealthy through the change, but New England will not be made the poorer.

The First Skirmishes.

Just about the time when the South was winning these first skirmishes, and when its people were dazzled by the new opportunities of employment and wealth-creation which were opening before them after the darkness of thirty years of war and reconstruction trials, there came the world-wide financial panic following the Baring failure. The South, suddenly brought down from its dizzy speculative



COTTON CONSUMPTION IN SOUTHERN MILLS—BALES.
1880. 1890.
233,586. 1,399,000.

height, had to face new conditions. The business world recognized that the supreme test of the South's inherent advantages and possibilities had come. It faced the situation—its ironmasters steadily reduced the cost of iron-making until furnaces which had been turning out \$8 and \$9 iron were able to produce \$6 iron; its cotton-mill owners wisely abandoned old machinery, and, equipping their mills with every modern improvement, drove them to their utmost capacity night and day in order to double the output on their invested capital and proportionately reduce the cost of goods; its cotton-planters, who had kept their corn-cribs and smoke-houses in the West, buying in the aggregate about \$100,000,000 worth a year of

Western corn and bacon, commenced to raise their own food supplies, and in this way, returning to the old ante-bellum system, reduced the cost of raising cotton. While these changes, all revolutionary in their character, were in progress, the small bankrupt railroad lines were brought into compact systems, new and heavier rails laid, rolling stock increased, and necessary extensions made.

Iron and Coal.

Thus the South passed through the long period of depression, standing the great test, which came so unexpectedly, in a way that strengthened the world's confi-

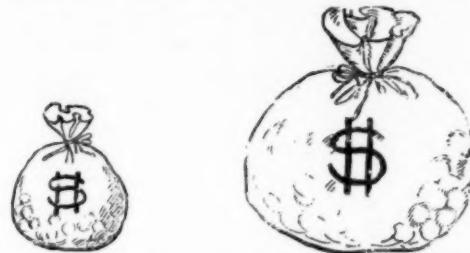


SPINDLES IN COTTON MILLS.
1880. 1899.
667,000. 5,000,000.



PHOSPHATE MINED—TONS.
1890. 1899.
750,000. 2,000,000.

dence. It not only held its own during this period, but its iron-makers entered foreign markets and demonstrated that the South could dictate the price of iron for the world. Alabama iron set the price in England and on the Continent, as well as in Japan, and even from Jerusalem came an order for it. This marked a revolution in the world's iron and steel interests. Henceforth the world was the market for Southern iron. When this point had been reached, the next step was to build steel works commensurate with what had been accomplished in iron-making; and today two gigantic plants—one to make steel billets and the other to make fin-



CAPITAL INVESTED IN MANUFACTURING.
1880. 1899.
\$257,000,000. \$1,000,000,000.

ished steel products—are nearing completion at Birmingham. They have cost about \$2,500,000. They have already booked heavy orders for steel billets for shipment to Pittsburg. A number of furnaces built during the boom of 1889-90, and which have been idle ever since, have lately been bought by strong companies, and are now being put into blast. With every furnace crowded to its utmost capacity, which will soon be the case, the output of Southern iron in 1900 promises to be nearly 50 per cent. larger than ever before. The demand for coal exceeds the production, though that is now at the rate of 40,000,000 tons a year. There is almost feverish

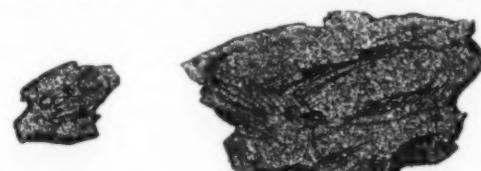


CAPITAL IN COTTONSEED-OIL MANUFACTURE.
1880. 1899.
\$3,500,000. \$40,000,000.

activity in enlarging the output of old mines, in opening new ones, and in building coke ovens, for a ready demand meets every ton produced with a profit that makes glad the stockholders.

The Phosphate Industry.

Turning from iron and coal, with the almost fabulous profits which they are yielding, to other industries, phosphate-mining looms into prominence. Up to ten years ago South Carolina was the only American source of phosphate rock, and our fertilizer factories, as well as those of Europe, had to depend upon the few



COAL MINED—TONS.
1890. 1899.
6,000,000. 40,000,000.

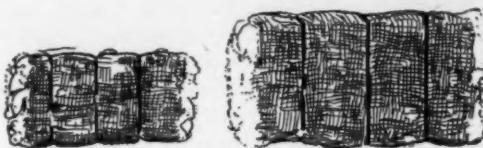
hundred thousand tons which that State annually produced. Then it was discovered that Florida had vast phosphate beds, and soon that State surpassed South Carolina in this industry. Two or three years later similar discoveries were made in Tennessee, and the mining activity which has followed reminds one of the tales of development in new gold regions. Ten years ago the South's output of phosphate rock was not more than 75,000 tons; this year it will be 2,000,000 tons. What this means in the diversification and improvement of agricultural conditions is too broad a subject for treatment here.

The Forests.

Possessing one-half of the standing timber of the United States, the South is building up immense lumber and woodworking interests, and throughout the entire lumber regions business is as prosperous as in the iron districts.

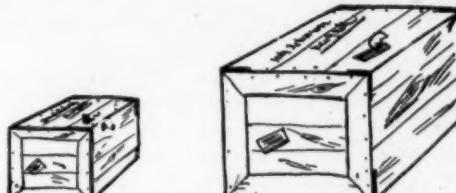
Cotton Is Still King.

Though the value of the grain now raised in that section exceeds on the farm the value of the cotton crop, cotton is still the dominant power in the business life of the South. No other country has such a monopoly of any agricultural staple of such world-wide influence as the South has of cotton. Cotton and cotton-seed bring to Southern farmers an average of \$300,000,000 a year. The com-



COTTON CROP—BALES.
1880. 1898-99.
5,750,000. 11,274,840.

paratively new industry of cottonseed-oil making now employs over \$40,000,000 of capital and yields an annual product of upwards of \$50,000,000. From Galveston alone the foreign exports of cotton oil and cottonseed meal are averaging nearly 1000 tons a day. Of this industry the South has almost as much of a monopoly as it has of cotton-growing, but in the manufacture of cotton goods this section, though making marvelous progress, is still only getting well started. There are about 100,000,000 cotton spindles in the world. The South furnishes the cotton for about three-fourths of these, or 75,000,000 spindles, but has only 5,000,000 spindles. To consume in its own mills its crop of 10,000,000 to 11,000,000 bales would require the investment of over \$1,500,000,000 in new mills, and long



VALUE OF MANUFACTURED PRODUCTS.
1880. 1899.
\$457,400,000. \$1,500,000,000.

before that point could be reached, even at the present rapid growth, the world will annually require of this section from 25,000,000 to 30,000,000 bales. In 1880 the South started on its cotton-mill development with a basis of 667,000 spindles, representing a capital of \$21,000,000. By 1890 it had \$61,000,000 capital in this industry and 1,700,000 spindles. Today it has 5,000,000 spindles and about \$125,000,000 of capital invested in cotton mills, while mills under construction represent about \$25,000,000 more. The most significant sign of the times in this industry is that New England mill-owners, recognizing that the South is bound to win, are transferring large capital to Southern mills. A number of the leading mill companies of the former section have, during the last few years, built



PIG-IRON PRODUCED—TONS.
1880. 1899.
397,000. 2,500,000.

branch mills, costing from \$500,000 to \$1,000,000 each, in the South; and now one of New England's greatest corporations is spending \$2,500,000 in building in Alabama what will be the largest cotton mill ever constructed as a single enterprise. The recent advance in the price of cotton is bringing prosperity to the farmers, and if it holds for the balance of the season will mean \$75,000,000 more to them than they received for last year's crop.

In diversified interests the same story of progress and prosperity runs. The Newport News Ship Yard, with over \$10,000,000 of work under contract, including two steamers of about 12,000 tons each for the Pacific trade, the largest ever built in America, is said to be employing more hands than even the Cramps;



CAPITAL INVESTED IN COTTON MILLS.
1880. 1899.
\$21,900,000. \$125,000,000.

the Richmond Locomotive Works is competing with the Baldwins in exporting locomotives; the Maryland Steel Co. has been furnishing steel rails for Russia's Siberian railroad, for Australia and other distant regions; Alabama coke has gone to Japan, and the export of both coke and iron is only limited by the fact that the home demand now exceeds the supply.

The South's Story in Statistics.

Statistics are often uninteresting, but the story of the South's progress cannot be told more clearly than in the comparative illustrations scattered through this article, in which reliable estimates are given where exact figures are not obtainable.

Surveying the whole Southern situation, what has been done and what is under way, it can be truly said that—"all's well."

BALTIMORE, THE SOUTH'S FINANCIER.

The Position Naturally Belonging to the City in the Section's Development.

By Hon. William A. MacCorkle of West Virginia.

Several years ago in discussing the possibilities of the South I used the language, which is stronger today than it was at the time it was uttered, "Should not we of the South be our own shippers and salesmen and money-changers? Should the giant be longer bound, and should not his locks be allowed to grow? Can any reason be shown why we should longer give toll to our competitors? Therefore, if the South is true to itself it will avail itself of the cheapest and safest route to the best markets, and that route is through the middle Atlantic ports. Why should the business of the manufactures, the railroads and the grain merchants be transacted in New York and the East rather than in Baltimore?" Three years ago I again asked the question, "Why should the grand empire of Southern Ohio, of Eastern Kentucky, of Virginia, West Virginia, Maryland, Northern Georgia, Alabama and the middle West be dominated in all matters of mercantile interest by the great city of New York, rather than by the city of Baltimore, which is equally potent in its ability to get the money to carry on the great enterprises of this section?" For many years it was the understanding in that great section that only in the East could the money be obtained necessary for the upbuilding of this marvelous region. I am glad to see that at last the eyes of the South are being opened to the great possibilities of Baltimore as a financial center, and that the people who are controlling the developing of the interests and enterprises throughout the upper South are now beginning to see that it is no longer just to the section in which they live to go to the North rather than to their own people to carry out the enterprises which will make this country so magnificent in its development. There is every reason why those who are investing in the South should understand that a Southern financial center, where it is able, is infinitely better for the interests of the South than a Northern city. The conclusion I have come to is that this financial diversion is due largely to habit.

After the war everything in the South was prostrated; our financial affairs were disarranged, and it grew into a habit to go to New York and there obtain the necessary means for any development in the South. I am glad to say that no longer is this the case. People are beginning to see that whilst in the South there are the kindest feelings to the North, that as between the North and the South we are for the South. When a Southern financial center is nearer by a day's journey, when it is more easy of access by the railroad and the steamship, when it is a nearer port for export and import, it is surely better for our people to deal with those who are directly interested by blood, by interest and by juxtaposition of territory. Every law of economics, every business interest demands that the development of this great region which I have mentioned above should be dominated by the great city of Baltimore rather than by an Eastern city. Nature so demanded it, and only by the exigencies of war was the natural course of business changed. If you will take your map and look at it, you will see that the city of Baltimore lies directly midway of the coast. The lines dividing the agricultural States of the South and the West and the manufacturing States of the North absolutely unite in this immediate region.

If you will glance further at your map you will be simply amazed at the difference between the natural advantages of the city of New York and those of the city of Baltimore. New York has only naturally tributary to her the valley of the Hudson. Baltimore has tributary to her the Virginias, Kentucky, Ohio, Indiana, Northern Alabama, Northern Georgia, Maryland and North Carolina. New York, by adding canal to canal and railroad to railroad, has added to her commercial territory, but, as a matter of fact, the country which has been tributary to New York is today largely and completely settled and developed. I think there is a wonderful future for Baltimore in this direction. New York has had her greatest line of development along her parallels of latitude. She has developed largely the middle West. The middle West is now largely filled with population. It has been gridironed with railroads in every direction. The vast field over which New York has had absolute control is, as I have just said, finished in all that requires the opening of new territory and the furnishing of money and the development of new industries, either of railroad or of manufacturing.

The territory over which Baltimore has control is practically not scratched. The richest section on the face of the earth is not yet touched. West Virginia, more potent in natural abilities than any section with which I am acquainted, is practically not scratched. West Virginia is absolutely tributary to Baltimore, and the masses of her people are turning towards Baltimore as the place where her developing interests should be financed. We have twice the area of coal land that is in the State of Ohio; we have 5000 square miles of coal more than the State of Pennsylvania. We have the largest body of hardwood timber in the United States and fields of ore and rich agricultural interests. Many of our counties, filled with the most magnificent coals, clothed with wonderful timbers, are not yet touched with the railroad or the manufacturer. Such is the case in Virginia, such is the case in Northern Georgia and in Alabama, and it gratifies me beyond expression to see that Baltimore has surrounded herself with such a financial fabric that these great and undeveloped regions can here, among our own kindred and with people who are acquainted with our habits and our business, find sufficient capital to open up the richest regions on the face of the earth. As a matter of fact, the immediate upper South has but lately seen the glimmer of Aladdin's lamp, and only within the last ten years has it been touched by the hand of progress. From my experience in this great developing section, I have no question in the world but that in the development of the next ten years our people will look to your great and substantial financial center to develop these marvelous interests of our upper South. You are nearer to us, with cheaper railroads, easier freights, smaller shipping charges, better natural facilities, with a better knowledge of the South and with ample capital, and in my judgment Baltimore, with her splendid financial establishments, will reap a rich harvest to herself and at the same time develop a rich country within the near coming years.

I wish to emphasize why I believe that within a comparatively short time there

will be the greatest development in this particular region of which Baltimore is the practical commercial center. Some years ago I was impressed with the fact that the center of iron and steel industries would be in the Virginias, Alabama, Kentucky and Tennessee. The coal, iron and the limestone in these sections can be taken from the same hills. The most inexhaustible beds of brown and red hematites are in this section, and here are the finest coking coals. To commingle these great products only a short haul is necessary—less than one-half the haul that is demanded by the same products for any other section. My former impressions of the richness of this country in the iron and steel products has been verified, and I find that the South is setting the price of pig-iron today throughout the world. With these immense developments of iron and steel there will come within this section, and there is coming today, a large and intelligent population. I believe that this large manufacturing section will become less and less dependent upon the East for the management of its financial concerns in the working up of this vast industry in this immediate section, and if the present rate of progress continues this portion of the South will be the seat of a large population, which will be needed in its development of this production. Such is the case in the manufacture of lumber. I challenge any section of the United States to show a like increase within ten years in manufacturing compared with the development of the region which I have indicated.

This section absolutely demands a financial center in the South which is easily accessible and able to furnish the means for these great industries. In addition to this is the great phosphate industry, which latterly I have been investigating, and the management of which Baltimore is largely appropriating to herself. The recent development of the trust-company system will give Baltimore an immense advantage in the financing of Southern affairs. One great advantage which New York has heretofore had in the South has been that she has had mercantile institutions whose wholesale business it was to attend to the financing of developing concerns. The financial institutions of the South were purely banks, and they were entirely too rigid in their government to allow them to take a hand in the actual development of this vast region. Within ten years the city of Baltimore has developed more financial institutions with elastic constitutions fitted to enter into the peculiar development of this country than any other city in the Union. On every hand I find that our people are taking advantage of this circumstance, and I am personally aware of a number of developments which are looking to Baltimore now for their financial management, where heretofore they looked to New York city. With Baltimore nearer to the great coal, phosphate, timber and iron producing centers of the South than any other city, with her splendid consecutive and elastic financial institutions, there can be no question but that she is the ideal city for the peculiar development of this great region. While we glory in the commercial greatness of the North, still as between a Northern city and as convenient Southern city, with even more advantages than the North, all sensible people will be with the Southern city.

When we of the South can, to a large extent, control our financial affairs, it will be but a short time until we can control the absolute commercial destiny and development of the South, and largely of this country. The great trouble heretofore with the South has been that those who have furnished the money for the

financing of great Southern developments have taken the profit to the North and left us the hillside denuded of the timber, the coal mine with the coal taken out, the ore bank with the ore removed, and when the natural product has gone all the profit remained in the North, from whence the money came to develop. No other country in the world, excepting the rich South, could have stood this tremendous drain. No other country could have lasted so long under this commercial condition.

What I have prayed for in the South is that we should not alone be a mere producer of raw material, but that all of the rich usufruct of manufacturing our raw material and of financing the institutions which are manufacturing the raw material should be done, if possible, in the South. When our people see that herein lies our safety and our future commercial greatness, I believe they will be impressed with the idea that we should not any longer look entirely to the North for all of the money necessary to carry on our development in the South. In my own State we have had great exemplifications of my statement. Thousands of acres of timber have been purchased by Northern capital; great developments of coal properties have been brought about by Northern capital, and every dollar of the money, which is clean profit in this development, has been taken to build magnificent homes, great colleges, palatial pleasure grounds in the North, and has furnished millions of money for Northern people to collect about them in their own section all of the beautiful things of art and pleasure which money will buy. I am in favor, and most earnestly in favor, of our own South having the profit from our own development, purchasing all of that which comes from the profit of our financial development, and not leaving the South with the empty coal bank and denuded hillside.

It is not alone sentiment, but, I repeat, it is absolutely necessary for the permanent commercial glory of the South that we obtain the money from the South and let it be spent in the South. The people who make the money out of the development of the new country are in almost every instance the people who furnish the capital for the development of that particular enterprise. The section in which this profit is spent is the section, therefore, which is benefited by the development, and the pursuance of any other policy means nothing more nor less than placing the South in the position of Ireland to England. The steady continuance of the South in the policy which it has heretofore pursued will make the South a country of absentee landlordism. Our salvation lies in making the development of the South through the financial institutions of the South. We are well able now so to do under the changed condition of financial affairs, and every Southern man should be indoctrinated as earnestly as possible with the idea that the South is now able, under the economic condition of affairs of the day, to furnish the great volume of money that is necessary for her development.

Do not understand me to decry the North and the East, but every reason of economics demand that we should have our own money-changers in the South. When Baltimore, our largest city, is increasing in power, surely must the South be benefited thereby. Every railroad through the Virginias points directly to Baltimore. There is not a product in the South which cannot be more cheaply marketed in Baltimore than in the East. In export trade it is a day's further journey to New York than to Baltimore, and that day's journey on a ton of product means the difference between profit and loss. Surely, in all

the exporting of our products there can no longer be any reason shown why they should go to New York rather than to Baltimore. With Baltimore in the condition she now is to largely control the financial affairs of the South, I confidently look for an immense export trade from the South through the port of Baltimore. With the export and import will come to Baltimore through this section increased financial character. To get and obtain the South American trade it is nearer than any other port of the upper South. "Speaking of this trade," says Commodore Maury, "in the Amazonian trade the winds for us are fair to go and fair to come, and we of the Atlantic seacoast are the only people for whom they are feasible both ways. The winds from the capes of Virginia or from Charleston to the Amazon is the most certain advantage as to the length of time that is between any of the ports in the Atlantic ocean." Of all of the ports of the North and South demanded by the great middle market which is developing its immense possibilities, Baltimore is the nearest port. I con-

fidently expect that within the next few years her large financial interest will to a great extent do away with the position of New York in the developing affairs of the upper South. With the cotton of the South, with the iron, coal, ore, phosphate and timber of the Virginias and the immediately contiguous territory, there can be no possible reason why the safe, conservative and rich financial trust companies of Baltimore should not largely control this great section. The whole financial and social sentiment of the South is to the upbuilding of a great financial center within our section, whose increase will be our increase and whose glory will be the glory of the whole South, and into whose lap will flow a vast part of the profit from our rich mines and railroads, which will be evidenced by our own splendid palaces, our own great institutions of learning, magnificent libraries and happy and contented people.

W. A. MacLokey

BALTIMORE CAPITAL IN THE SOUTH.

The close of this year will carry into history the record of a marvelous revolution in the financial history of the United States. Operations in the past year have in the eyes of the world unalterably fixed the position of this country as a dominant power in finance. Continental disturbances or the whims of foreign rulers no longer possess the old-time terrors to the stability of our position in the monetary world. The expansion of American commerce in the past five years prepared the way for placing this country in the role of a lender instead of a borrower, and the big credit balance we have abroad has turned the Old World financiers towards this nation as the coming power in money matters.

This general mutation of financial conditions, when analyzed, presents a radical change in the centralization of money in this country. New York is no longer the sole center of money. The economic law that causes money, like human effort, to seek the market where can be found the greatest utility, is reflected in the advanced position to which the city of Baltimore has been moved in the money world. The Southern States now have a monetary center in Baltimore equal to the handling of transactions of the largest caliber. Millions of new capital during the past year have been assembled by new financial institutions in Baltimore and await opportunities for investment. Nearly \$20,000,000 have been put into the capital and surplus of new and old trust and bonding companies in Baltimore within twelve months, and the resources of these institutions have been doubled by this new capital. To the Southern States, whose rapid development demands the support of capital, the fact that the financial machinery to handle large enterprises in Baltimore is just twice as great as it was a year ago is of more than passing interest.

It has been estimated that the amount of Baltimore money invested in Southern enterprises of all classes is about \$100,000,000. This is a tremendous sum. It is \$105 for every man, woman and child residing in the Monumental City. The faith of Baltimoreans in the South is thus backed up on a basis of four times the per capita circulation of money in the United States for each inhabitant. With such a record, why shouldn't Baltimore be the clearing-house for the financial operations of the Southern people?

There is not a railroad of dominating influence in the South that does not have behind it Baltimore dollars. There is the great Southern Railway, which, under the broad policy upon which it is now managed, is each year becoming more of a power in Southern development. Baltimore money in this enterprise, placed there as a permanent investment, is not less than \$7,000,000. Then there is the new Seaboard system, which that financial genius, John Skelton Williams, and his coterie of wide-awake associates are transforming into a new all-rail route to the South. Baltimore millions, in conjunction with other Southern money, will control this system. The Atlantic Coast Line, whose progressive management is likened to that standard of modern railroading—the Pennsylvania Railroad—is owned in Baltimore. There are a number of small roads spread throughout the South also owned there. In water transportation to and from the South there are millions invested. A recent example is the reconstruction of the Dismal Swamp canal.

The street railways of Roanoke, Richmond, Norfolk, Raleigh, Winston-Salem, Charlotte, Charleston, Columbia, Atlanta, Macon, Birmingham, Chattanooga, Knoxville, Nashville, Lexington, Dallas, and many other cities are either wholly or partly owned by Baltimoreans. A handsome part of the capital of several leading financial institutions in the South can also be added to the list.

In the cotton mills of the South there has been invested large sums from this city, and a number of mills are owned entirely here. Coal and iron mining engages another big lump of money in Virginia, West Virginia and Alabama. Fertilizer manufacturing and phosphate mining in South Carolina, Florida and Tennessee owe much of their present magnitude to this same power. Then the lumbering operations of the South Atlantic States look to Baltimore as headquarters. Saw-mills in large numbers have been erected by Baltimore capital, and miles of railroad built into the timber areas.

miles of railroad built into the timber forests. The power of Baltimore money has in this field built homes for thousands all over the world from Southern timber, supplied the furniture to put in them and even furnished the last repose when their lives flickered out. It would be difficult to even approximate how much money is represented in this direction, but the esti-

mate has been made as high as \$15,000,000.

The ramifications of Baltimore capital in the South cannot be recorded with any degree of accuracy, and what has been presented in this article represents the more conspicuous fields in which it is engaged.

When giving the estimate that there is \$100,000,000 of Baltimore money invested in the upbuilding of the South, the temporary financing of enterprises by institutions of this city and the subsequent sale of the securities to investors of other cities is not accounted for, as the effort was to approximate the amount of Baltimore capital that had found permanent lodgment in the South. As to the passing financial operations, these will run into many millions during a year. There are besides the trust companies engaged in this sort of business, a number of old established banking houses, such as Alexander Brown & Sons, Wilson, Colston & Co., Middendorf, Oliver & Co., Hambleton & Co., Fahnestock & Co. and others who have the confidence of investors and are looked to for opportunities to put into employment idle capital.

The capacity for handling deals involving large sums of money depends upon the available capital. What Baltimore can do in this way was demonstrated during the past year, when a \$76,000,000 street-railway deal was carried out without a ripple in the financial market, although in one day payments aggregating \$14,000,000 were called. The formation of a cotton-duck trust, involving about \$25,000,000 and independent telephone operations aiming to combine companies throughout the country and already calling for new companies capitalized at \$1,000,000, \$1,500,000 and \$5,000,000, are among the more recent progeny of Baltimore capitalists. This forward position taken by the city in financial matters has drawn to it outside resources. While most of the development of the past had been by home capital, this business has swelled to beyond the means of purely Baltimore money, and now we see the unusual spectacle of such cities of wealth as New York, Boston, Philadelphia, Pittsburgh, Cleveland and Chicago sending capital to Baltimore for investment. There is hardly a trust company in the city that does not have in its directory men of national reputation in other cities. The Standard Oil magnates, the leaders in the steel and iron operations around Pittsburgh, the owners of some of the far Western railroads, the prominent commercial and manufacturing interests of the Northwest are all represented in the directories and stockholders of these companies. Surplus money finds ready employment among them, and the practice of paying interest on money subject to check has brought to the city large sums from localities having no employment for their surplus funds. The amount of money on deposit among the trust and bonding companies is about \$15,000,000. The aggregate capital and surplus of

The aggregate capital and surplus of these companies is about \$40,000,000. Deposits in the national banks aggregate about \$50,000,000, and their total capital and surplus is about \$16,000,000. State banks carry about \$3,000,000 in deposits with capital and surplus of \$1,500,000. The eight leading savings banks have deposits of over \$50,000,000, with nearly 150,000 depositors.

Then the fire and life insurance companies, all of whom have considerable money to invest, represent about \$7,000,000. In bank clearings Baltimore is one of the great cities of the country, with a year's record overtopping the billion dollar mark. Among the financial institutions of the city are the following:

BONDING AND TRUST COMPANIES.			
Names of Companies.	Capital.	Surplus.	Reserves.
Atlantic	\$1,000,000	\$1,000,000	.....
American Bonding	1,000,000	500,000	.....
Baltimore	1,000,000	2,000,000	.....
Citizens'	2,000,000	500,000	.....
Continental	2,000,000	2,000,000	.....
Fidelity & Deposit	1,500,000	2,600,000	.....
Fraternal	100,000	.....	.....
Guardian	1,000,000	300,000	.....
International	3,000,000	1,500,000	.....
Maryland	1,500,000	1,500,000	.....
Mercantile	2,000,000	3,000,000	.....
Maryland Casualty	750,000	600,000	.....
Old Line	1,000,000	250,000	.....
Real Estate	600,000	300,000	.....
Realty	1,000,000	250,000	.....
Safe Deposit	500,000	600,000	.....
Security Storage	200,000	20,000	.....
U. S. Fidelity	1,500,000	582,000	.....

TOTALS	\$21,650,000	\$17,502,000
NATIONAL BANKS.		
Names of Companies.	Capital.	Surplus.
American	\$200,000	\$50,000
Canton	100,000	10,000
Citizens'	500,000	500,000
Commerce	300,000	100,000
Com'l and Farmers'	512,560	130,000
Continental	300,000	34,500
Drovers and Mech's.	300,000	300,000
Exchange	600,000	150,000
Equitable	500,000	100,000
Farmers and Merch's.	650,000	325,000
First	555,000	250,000
Howard	230,000	33,700
Manufacturers'	500,000	40,000
Marine	400,000	100,000
Merchants'	1,500,000	500,000
National of Baltimore	1,210,700	400,000
National Mechanics'	1,000,000	600,000
National Union	900,000	200,000
Second National	500,000	500,000
Third National	500,000	55,000
Western	500,000	300,000
TOTALS	\$21,650,000	\$4,470,275

Totals	\$11,758,260	\$4,479,276
FIRE AND LIFE INSURANCE.		
Names of Companies.	Capital.	Free Surplus
American	\$200,000	\$62,000
Baltimore	200,000	
Balto. Equit. Society		1,874,000
Fidelity	500,000	250,000
Firemen's	500,000	154,000
German	500,000	682,000
German-American	200,000	164,000
Home	200,000	103,000
Maryland	100,000	25,000
Old Town	100,000	26,100
Peabody	127,500	93,940
United	250,000	250,000
Maryland Life	\$2,877,500	\$3,684,040
	100,000	400,000
Totals	\$2,977,500	\$4,084,040

MARYLAND TRUST CO.

Wide Range of Its Financial Operations.

The Maryland Trust Co., South and German streets, was organized in May, 1894, with a capital paid in of \$500,000, which amount was increased April 1, 1895, to \$1,000,000, and on March 15, 1899, to \$1,500,000. It has also a surplus of \$1,500,000 to \$2,000,000 undivided profits. One of the first large transactions carried through by this company was the extension in 1894 of the Charlotte, Columbia & Augusta first-mortgage bonds, amounting to \$2,000,000. Since that time it has been associated with many of the large plans of development throughout the South. It has also been instrumental in developing the street railways in many of the cities throughout the country, particularly in Baltimore, Pittsburg and St. Louis. The company acts as financial agent for States, cities, towns, railroads and other corporations, and transacts a general trust business. It lends money on approved security, allows interest on special deposits, acts as trustee under mortgages, assignments and deeds of trust, as agent for the transfer or registration of stocks and bonds and for the payment of coupons, interest and dividends.

The officers of the company are: President, J. Wilcox Brown; vice-presidents Lloyd L. Jackson and Henry J. Bowdoin; secretary and treasurer, J. Bernard Scott; directors, J. Wilcox Brown, William A. Marburg, Basil B. Gordon, Lloyd L. Jackson, George A. von Lingen, H. J. Bowdoin, Joshua Levering, ex-Governor Frank Brown, W. B. Brooks, Jr., W. H. Baldwin, Frederick W. Wood, Seymour Mandelbaum, Leopold Strouse, Henry Walters, Harry A. Parr, Bernard N. Baker, Andrew D. Jones, James Bond, Alexander Brown, John A. Tompkins, Clayton C. Hall, J. D. Baker, Joseph E. Willard and John Pleasants.

IN AN AGE OF ORGANIZATION.

By John L. Williams of Virginia.

To a thoughtful mind the achievements and advances of this generation are almost bewildering. Our developments, responsibilities, requirements, outlooks and possibilities are oppressive and exhausting. No wonder that nervous affections of all sorts are so prevalent. The wonder is that so many survive the strain to which directly and indirectly we are all subjected. Common interests, common conversation is stimulating. Business is on a high plane. Everything is full of throbbing life and light and energy. We are all living under high pressure. Maximum of result, elimination of waste, with a minimum of material and effort, is the principle of all our works. Our life is intense. Intellectually, morally, physically, we are feeding upon the risen cream of all the past. We are enjoying the harvest of the world: the fruits, the discoveries, the accomplishments for which all past ages have sown, have studied, have labored and have given their lives. Light, power and rapid transit, immediate results, the annihilation of time and space, and the utilization of all the secrets, resources and forces of nature are our familiar occupation. All learning is being popularized for general enlightenment and use. Science is not only unfolding her ample page to the people at large, but making educational toys for our children. Our average child of twelve years of age could astonish the sages of the past with his understanding and answers. It is hard to resist the thought that we are in the old age of the world: in the latter day. Are we in a new era, or about to pass into one?

The question is, How shall we be equal to our possibilities, intellectually, morally, physically, socially? It is quite in keeping with all that is going on around us that organizing fills the air, and our age is that of organization. Geology has shown us that the progress and development of life, animal and vegetable, has been from the "erudit et indigesta moles" —the mass—to the organism, and to higher and higher existences.

The era we live in began with the magnifying of the individual man and the disintegration of masses that despots owned and ruled at their will. Social fermentation has continued for near two thousand years, and social crystallization, settlement and organization are following in order, and assuring and establishing the dignity and power of citizenship.

At this time clubs, associations, fraternities, lodges, brotherhoods, corporations of every description, combines, trusts, conventions and councils exist and are held to an extent never before known in the history of the world. And this is the working and consequence. A leading idea, a valuable discovery, a common interest or desire is the moving principle, and fires up the individual. He finds associates, and together they thoroughly investigate and form a power to establish, defend and enforce their rights and promote their great ideas and enterprises. This is the early history of all great accomplishments, the course of crystallization and organization. And these courses in numberless departments and directions effect the enlightenment, the development and perfection of the individual citizen and the general advance.

Whatever there may be of enthusiasm or mere personal interest in all these beginnings and processes, they are of incalculable importance. The principle of the "selection of the fittest" begins with the organization. The man of most intelligence, life and force naturally is found in

the lead, is president and organizer. The best and fittest are selected for his staff and counsellors. These conditions are absolute if success is sought. And thousands of organizations have come and are coming into existence in this way.

Every one of these organizations is an educational institution, a school of citizenship. A certain dignity and decorum controls in the highest and lowest, and good manners are taught. And public opinion imposes and exacts of teachers honesty and fidelity. Self-respect, conservatism and humanity are a necessary result of organizations under our civilization. They all make for assurance, quietness and peace. Strangely, subordinate orders and powers and methods in the form of guarantee companies, bank examiners and protective associations compel and ensure fidelity, good behavior and good character and safety. Character is a necessity of business: and education is compulsory.

The process of organization and crystallization is in the direction of general order and general good. Antagonism and strife look to mutual destruction and general ruin. Co-operation and order and mutual regard look to unification and perfection and progress.

Trusts and combines are the natural growth of the peaceful, wise and honorable operation of all corporations and associations in the public service. And no man nor body, out of the public service, can or ought to survive. We are all members one of another. And the effectual working in the measure of every part makes for the highest public welfare.

The sensitiveness of capital, the absolute necessity of private and public faith and character, of knowledge and intelligence, and the natural affiliation and cohesion of common interests, and the identity of personal, corporate interest with public welfare are the philosophy and recommendation of organizations, trusts and combines. Their existence and success depends on the preservation of peace, of order, of justice, of equity and of humanity.

The great ideas and principles that underlie the union of the American States underlie the trusts and combines of our present business life: distinct as the bilows, but one as the sea. The good of the individual workman, of the special corporation, of the grand whole, are all guarded and promoted in the commonwealth. A trust is a grand gathering and co-operation of citizens, and its fundamental principles are character, intelligence, energy and mutual confidence and good-will.

The danger that has been regarded as threatening our republican existence has been that the irresponsible would rule the responsible—the ignorant masses under demagogues ruling the good citizens. The organisms that are now being formed, establishing the power and control and influence of good sense, of experience, of character and responsibility, make for the establishment and permanence of all our institutions. The rights of the single citizen are identified with their successful working. By them rotation in office and the reward of merit are secured after the highest ideal of the most optimistic politician. We are moving towards a prophetic condition, when wisdom and knowledge are to be our stability, and the good of the whole shall be dependent on the virtue, fidelity and happiness of the individual.

To crush and benumb the individual is to kill and destroy the whole. And the commonest workman and the poorest

dealer is alive to the necessity of his position, and every man is investigating instinctively his rights and vital interests and preparing to defend and enforce them by subordinate organizations and brotherhoods. *Esprit du corps* is an acknowledged business necessity.

Trusts and combines are not mere methods of greed, monopoly or a passing fashion: but the natural evolution, growth and development of advancing civilization in the way of commerce, manufacture and agriculture: the assurance of republican triumph. In natural union there is strength. The results so far in business have been perfection in products, cheapening and general diffusion of the comforts of life, and the compulsory education and elevation of the individual man, advancing the dignity of citizenship and the intelligence of human labor. We of the South have had our share of the beneficial effects of trusts and combinations for advancing enterprises. Great works, railroads, mining operations and manu-

factures have been undertaken and brought into successful operation largely through our own and the great financial trust companies of Baltimore, that without their aid would not have been thought of. Baltimore has stood the friend of all legitimate enterprises in the South, and bids fair for years to come to be our financial business center, and largely our gateway to the outside world.

The establishment of the Nicaraguan canal, turning the great course of trade with Western America and all the East through the Gulf of Mexico and along our ports, will crown the glory of our highly-favored section, and all who have helped us in our desolation will have rich rewards. Certainly we owe no greater debt of gratitude to anyone than to you for your courageous and untiring efforts in our behalf through your invaluable journal.

J. L. Williams

VIRGINIA AS A MANUFACTURER.

It was announced the other day that more money for United States naval work was spent at present in Virginia than in any other State. This statement, based upon the size of the pay-rolls at Norfolk, the coaling of war vessels at Lambert's Point, the construction of battleships and other craft at Newport News and of torpedo-boats and destroyers at Richmond, the manufacture of projectiles at Petersburg, and other activities, is an indication of the future of Virginia as a manufacturer.

Today's manifestations, however, do not measure up to the State's possibilities. No one appreciates that fact better than far-sighted Virginians, who are leaving nothing undone to insure to themselves the full benefits of a success born in the application of common sense, energy and perseverance to the development of the advantages of location and natural resources. They are not content with the knowledge that immense sums of money are spent in Virginia. They are determined that their State shall have as complete enjoyment as possible of the money which comes there. Their purpose is to reduce to the minimum the necessity of sending beyond the limits of the State for material to be used in industry, thus making most useful its forests, fields and mines, increasing the number of thrifty, vigorous citizens and placing Virginia in the forward position of self-possession which she is eminently qualified to hold.

Virginia in the role of manufacturer is no novelty. But her efforts as such have been hampered at times in the past by lack of facilities, by a neglect of nearby opportunities in a desire to make sudden gains elsewhere, in the migration of forceful, hopeful spirits to other States to escape the pall of the devastation of war, and by the absorption of energies of many of those remaining at home in rebuilding waste-places and in maintaining the integrity of character of the Commonwealth.

In Virginia, as in other Southern States, the progress towards an industrial standing of forty years ago, checked by war, was hard to resume under the stress of a demoralized labor system. There have always been among her citizens, however, men unable to find the word failure in their vocabulary. Their efforts of the past twenty years, made in the face of almost insurmountable difficulties at the first, are now bringing legitimate reward, and with changed cir-

cumstances have opened the way for greater exertion to an end more promising than ever.

This evolution of industry has been largely the effect of the growth of single undertakings from comparatively small beginnings, through persistent attention to business on conservative lines. These were for the most part started with Virginia capital, which went also into subsidiary industries centering about the larger ones. Tobacco manufacturing at Richmond, for example, reviving with the restoration of order, and diversifying as profits increased, gave a distinctive character to the city. But around the tobacco factories have developed other plants, such as paper-box works and a japanned-ware factory, growing from a modest establishment where tags for tobacco were made, while cedar works now covering a large area and doing a vast business are a feature in the woodworking industry. A plant for the preparation of meat juice for use in medical factories, originating in experiments of purely personal intent, has developed such a vast trade at home and abroad as to make a notable increase in the cattle business of the city. The outcome of this is seen in up-to-date stock-yards and the formation of an abattoir company. The natural addition to the iron industry which was peculiarly Richmond's own were machine shops and locomotive works. When the engines of a great battleship for the United States navy were successfully produced at the locomotive works the logical step was to build the vessels in which engines were to be placed. Hence, a shipbuilding yard is opened and obtains contracts for United States torpedo-boats, destroyers and cruisers, and the launching of the first of these vessels built there becomes a national event and points to other contracts necessitating a trebling of the force of employes. A fertilizer plant becomes the nucleus for an aggregation of capital practically controlling the manufacture of commercial fertilizers in the South, and the plans for the complete utilization of the magnificent water-power of the James river, once the basis for an export flour trade which waned with the growth of the new process near the wheat fields of the Northwest, leads to the organization of a company which will build a mill equipped with modern facilities and having a daily capacity of 1200 barrels.

For twenty years and more money had been made in Richmond in manufac-

ing enterprises. Where it had been spent in Richmond much of it had gone into enlargements of the enterprises. Quite as much, perhaps, had gone into investments outside of Virginia. The marked feature of the movements of today is the fact that Richmond men are showing their faith in their own city by their works, and are more inclined than ever to invest at home in new concerns.

At Norfolk and vicinity the shipment of truck of various kinds to Northern markets has been supplemented by building of canneries and packing-houses, with dependent manufacturing plants, adding to its importance as a manufacturer consequent upon its lumber interests. Nearby is the flourishing community of Newport News, with its dry-dock and shipbuilding plant, the most important in America, a child of capital from outside. It is outside capital also which is finding lucrative employment in combining from Bristol as a center the iron furnaces of Southwestern Virginia and in developing the iron and coal resources of that region, the practical value of which has been demonstrated by Roanoke, transformed within twenty years from a mere village into a flourishing, progressive manufacturing center. Alexandria, once glorying as a colonial commercial emporium, has turned attention to manufacturing, and an association of live business men is persistently demonstrating the city's advantages as a place of residence for manufacturers and their employes, as an assembling point for materials of industry and as a distributor of the finished products. Danville, availing itself of the splendid water-power of the Dan in building modern manufacturing establishments, and with its cotton factories, containing an aggregate of 70,000 spindles, and tobacco factories; Lynchburg, with its tobacco factories and minor industries; Fredericksburg, with its machine shops, pickle factories and canneries; Buena Vista, with diversified industries; Manchester, with its paper-twine mills and car shops; Staunton, with its implement factories; Petersburg, with its foundry, also doing work for the United States government; Charlottesville, with its woodworking establishments, hosiery and knitting factories, woolen mills and slate-pencil factory; Winchester, with its tanneries and flouring mill; South Boston and its woodworking factories; single flouring mills here, furnaces there, soapstone works in one place, quarries in another, manganese mines, extensive workings in pyrites, an establishment almost in the woods, but doing a national business in printing labels, are other evidences of Virginia's future.

They are really but the sketch of that future. The outlines are firmly drawn. The material for filling in is abundant. The artists, skillful and engrossed in their subject, are daily increasing in number. New mineral fields are being developed, larger timber tracts are becoming productive, railroad facilities are being strengthened, more local capital than ever is going into local ventures having substantial basis, and capital from outside is being attracted. At the same time public sentiment favorable to agriculture upon an economic and skilled basis is being cultivated.

There is the prospect of a self-contained Commonwealth resuming the place for which it is naturally fitted and keeping pace industrially and commercially, to the advantage of all its citizens, with the progress of the country.

The New Orleans Times-Democrat is making a fight for the thorough development of the 4000 miles of navigable waterways in Louisiana.

WEST VIRGINIA AS IT NOW IS AND IS SOON TO BE.

By Governor G. W. Atkinson.

I take great pleasure in complying with your courteous request to furnish your readers an article upon the material resources of my State and its outlook for the future. It is only within the past few years that the people outside our borders have sought to acquaint themselves with what we have and are in the "Mountain State" of the republic. Fortunately, however, for them and us, of late they have begun to turn their eyes upon us.

It is now, I think, generally conceded that West Virginia is really a great State, and I very much doubt if any other State in the Union is keeping apace with us in growth and development. Coal and oil and gas and timber are our principal sources of wealth. Out of 25,000 square miles of area, 20,000 are coal and oil and gas miles, and we have yet remaining between 8,000,000 and 9,000,000 acres of virgin forests. So you see our natural resources are practically inexhaustible.

We have in many sections of the State eighty-nine feet of coal measures above water-level, and in boring for oil we find many valuable coal seams deep down in mother earth. So that when we consume our drift veins of coal we can engage our time and energies for a few thousand years shafting for the "dusky diamonds" that lie beneath the level. The opportunity, therefore, for money investments in West Virginia coal acres is almost without limit, and it can be done without risk to the investor.

In Pennsylvania coking coal is getting scarce, while with us it is only in its infancy; and this is why the coal men are coming among us and are rapidly buying up our coal fields; and this is one of the reasons also why our State is so rapidly coming into public notice and public favor. We are now next to Pennsylvania in coke production. We are third among the States in coal output, and will be second within a year. We are first in oil, having shipped in the last twelve months over 20,000,000 barrels, and we believe that it will yet be found in every portion of the State; and as to gas, it is absolutely without limit. Timber—big timber—grows on every hillside, and the buzz of the mill-saw lulls our people to sleep and awakes them from their slumbers at the dawning of the morn. So, on the whole, we are prospering. Business of all kinds is good, and there seems to be plenty of money in the land.

Viewed from an agricultural and horticultural standpoint, the State is making rapid progress. Stimulated and encouraged by the earnest and well-directed efforts of an aggressive non-partisan State board of agriculture, which is ably seconded and materially aided by the Patrons of Husbandry and other kindred organizations, great improvement is readily seen by those who are familiar with past conditions, and who observe things as they exist today. As the husbandman gradually adopts a more intensive system and cultivates well the limited number of acres he owns, upon which a paying crop is practically certain, conditions are changing for the better, and in time, if this system is adhered to, the cultivated portions of our State will be greatly advanced, and those who own and cultivate them will be among the best, happiest and most progressive people within our borders. Such families will enjoy all the opportunities for mental improvement and culture which are necessary to their well-being and happiness.

There are many reasons why agricultural pursuits pay as well in this State as in many others which are generally con-

sidered much more desirable as homes for those who propose to follow this first and greatest of all industries. Our nearness to the great markets of consumption, our very few crop failures and the great diversity of products we are able to grow successfully are a few of the many reasons we could give why agriculture, properly followed up, will prove as profitable in this State as in any other State in the Union. We should only cultivate such lands as are suited to that purpose, and this is an important lesson which we are slowly but surely learning.

We have other uses to which we can put our hill lands, and which oftentimes prove just as satisfactory and remunerative to our people. This State is pre-eminently a grazing and fruit-growing State, and our upland and mountain tops, which are in no sense adapted to the growing of the cereal crops, are the ideal fruit farms, and when well set in the famous bluegrass, which is indigenous to a large area of our surface, make a veritable paradise for sheep and cattle, especially for the former. There are but few acres in the State that may not be profitably used for grazing sheep and cattle, and for the production of as fine colored and fine flavored fruit as can be grown anywhere in the world.

There are now many thousands of young fruit trees coming into bearing, and in the very near future the number of orchards of commercial importance will be greatly increased, and the revenue to the owners and the State will be very considerable. The proper location, the proper soil, the most profitable varieties, the time and mode of planting, as well as the care of the trees and the handling of the fruit of maturity, are all coming to be better understood, which will greatly stimulate the industry and make it both more pleasant and profitable to the growers and more satisfactory to the buyers and consumers. The improvements which have been made in orcharding within the past few years have been both marvelous and gratifying, and this promises to be one of our great sources of income in the not distant future.

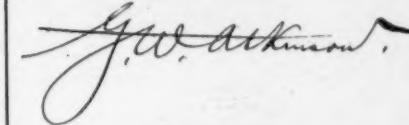
The improvement in our domestic animals has also been very marked within the past few years, and the importance and desirability of procuring pure-bred sires is becoming general throughout the State. With this improvement in breeding and feeding will come increased profits, and this, in turn, will increase the number of domestic animals, and the income of our people from this source will soon be more than doubled, which will cause the few remaining mortgages upon the farms of the State to disappear, I trust, forever.

We have made much progress along these lines, but we still need fewer number of acres more thoroughly and scientifically tilled, a much greater acreage of bluegrass and a larger number of sheep and cattle of a higher grade to fatten and grow into money upon our farms. We need hundreds and thousands more of carefully-selected fruit trees, by men who have been carefully educated and trained in such work, to cover our hillsides and make beautiful and profitable the now many waste places of our mountainous and yet wealth-laden State.

These desirable necessities are coming, and coming rapidly, and with proper encouragement and protection the husbandman, together with those engaged in the development of our many other sources of wealth, will be ushered into the twentieth century with brighter hopes and

higher aims and ambitions than they have ever known before.

Education and development will go hand in hand, and a higher, happier and better citizenship will be the inevitable result. We welcome the twentieth century, with its star of hope for our people, and trust that they will make the proper use of every opportunity and meet heroically and bravely every obligation of American citizenship.



FINANCING SOUTHERN INTERESTS

Scope of the International Trust Co.'s Operations.

The International Trust Co., with a capital of \$3,000,000 and a surplus of \$1,500,000, is largely concerned in financing Southern railroad interests and combinations of street railways and kindred enterprises. It was with a view to keeping it in close touch with these interests that headquarters were established in Baltimore, and that the strongest financial forces, not only of the South, but of New York and the West, were brought together in its directory. The company was organized about six months ago, and the stock was three or four times over-subscribed. The offices of the company are in the Equitable Building, and the officers are: President, Douglas H. Gordon; vice-presidents, J. W. Middendorf, John E. Searles of New York and Charles T. Westcott; secretary and treasurer, Charles D. Fenhamen.

The directors are Joshua Levering, Isaac H. Dixon, Summerfield Baldwin, Richard H. Edmonds, J. William Middendorf, Charles T. Westcott, Angus Cameron, Wm. A. Marburg, John T. Stone, Douglas H. Gordon, Bernard N. Baker, George R. Webb, Francis E. Waters, Simon Rosenberg, James Bond, Carl Ruhstrat, Chas. H. Koppelman, Lloyd Lowndes, Sevenson A. Williams, B. Howard Haman, Robert Ramsay; John E. Searles, New York; R. Lancaster Williams, Richmond; William C. Lovering, Massachusetts; W. A. MacCorckle, Charleson, W. Va.; C. Sidney Shepard, New York; J. G. Schmidlapp, Cincinnati, Ohio; Walter H. Doyle, Norfolk, Va.; W. A. Hemphill, Atlanta, Ga.; George W. Watts, Durham, N. C.; F. W. Roebling, Trenton, N. J.; James H. Dooley, Richmond, Va.

The company is a legal depository for trust funds for executors, administrators, trustees or receivers, acts as receiver, trustee and assignee of individuals, corporations or by appointment of court, and as registrar, transfer and fiscal agent for the payment of bonds, coupons, interest and dividends, takes charge and custody of real and personal estates and securities, acts as trustee under corporation mortgages, registers and transfers corporate stocks and bonds, receives business accounts and private deposits subject to check and allows interest on daily balances. It will issue certificates of deposit bearing interest at special rates, dependent upon the amount of deposit and the time for which it is issued. Accounts of corporations, State banks and bankers, national banks, savings banks, trust companies and building associations are received on favorable terms. The company will make call and time loans, and will buy and sell all classes of stocks and bonds of States, cities, counties and corporations. It offers special facilities to corporations and municipalities contemplating the issuing of bonds.

WIDE RANGE OF NORTH CAROLINA'S RESOURCES.

By Governor Daniel L. Russell.

In territorial domain and natural resources North Carolina is capable of supporting a population many times as large as the two millions now within its borders. It is six times the size of Massachusetts. Its extreme length would reach from its northern border to Canada.

North Carolina embraces a great variety of soils, and nearly all farm products of the temperate zone are successfully grown within its borders. It is immensely rich in minerals, possessing a greater variety of these than is perhaps possessed by any other State in the Union. The western division of the State, familiarly known as the "Land of the Sky," abounds in such resources as characterize the Appalachian chain of mountains. In North Carolina is the highest land east of Pike's Peak. This mountain range is annually the resting-place and playground of thousands upon thousands of tired workers from the different sections of the country. The watering places of this section are supplied with elegant hotels, and these in turn are furnished with all the appliances of modern convenience and elegance. That portion of this great mountain range which is within North Carolina is perhaps the most picturesque as well as the most exalted of the entire chain.

The undeveloped water-power of the State is enormous. It is estimated that it would be sufficient to manufacture seven times as many bales of cotton as the entire country produces. Late W. C. Kerr, State geologist, estimated the water-power to equal 3,500,000 horse-power. A large amount of this immense force has not been utilized. But it soon will be, because the time has come when the skilled operatives in cotton manufactories of Old England and New England must come to the source of the supply of the raw material, thereby obtaining also the benefit of better climate, cheaper fuel and cheaper food.

The State's greatest need is intelligent, educated and skilled labor. The want of this, and this only, prevents it from surpassing New England in population, wealth and productive power. In this direction, however, it is moving with wonderful rapidity. In 1870 the State had thirty-three cotton mills, with 40,000 spindles, all of them, perhaps, run by water-power, and most of them so primitive in machinery, defective in construction and deficient in production as to invite the derision of the New England manufacturers, who only smiled in contempt at the suggestion that from this quarter there could ever come a competition menacing to their supremacy. The spindles have increased from 40,000 to 1,200,000. Counting the new mills now in course of construction, there are more than 1,200,000 spindles in the State.

The State's cotton crop this year is estimated at about 550,000 bales. Of this cotton the mills in the State will work up about 400,000 bales. This raw cotton is probably four times as much as the State made in 1870. But the price then was fifteen cents a pound. Recently it was five cents. But happily it is five cents only for the 150,000 bales not manufactured in the State. The 400,000 bales turned into cloth is worth more than fifteen cents a pound. Thus we have it: Fifteen-cent cotton in 1870 gave North Carolina \$8,220,000; five-cent cotton in 1899 yields in raw cotton (150,000 bales) \$3,000,000, and in manufactured cotton (seventeen cents a pound) \$32,000,000. Fifteen-cent cotton yielded \$8,000,000; five-cent cotton gives us \$35,000,000. Of course, it will be remarked that these figures look well

as comparisons in the aggregate; but they mean, not prosperity, but poverty for the producer of the five-cent cotton. It may be said that, as compared with the crop of 1870, the cotton-planters expend 400 per cent. more in labor and land and material on the present crop, and get only 40 per cent. more money. This is an apparent but not an actual fact. The farmer makes this cotton with proportionately less labor and less land than he did in 1870. The cottonseed are more valuable. If he is close to the oil mill, and these are increasing rapidly in the State, he has for this product a ready cash sale or an exchange into meal and hulls with which to feed his flocks and fertilize his fields. Besides, every mill brings to his door a ready return for the small industries of the farm. Milk, cream, butter, eggs, poultry, meats, foodstuffs of all sorts can be made along with the cotton. Even raw cotton is frequently worth more to the farmer who is near to the mill. Factories by the farms will furnish many compensations for low-priced cotton. And, repulsive as the thought may be, it is as well to face the fact that this country must give the world cheap cotton or surrender its supremacy in that domain to Asia and Africa and South America.

There has also been in this State an enormous increase in the production and manufacture of tobacco. Latest statistics show 173 plug and smoking and thirty-four cigar and cigarettes factories, producing about 34,000,000 pounds of plug and smoking tobacco, 8,000,000 cigars and 309,000,000 cigarettes.

Towns and cities like Durham are now busy hives of industry, where only a few years since were primitive forests and broom-sedge fields. In the central and eastern portion of the Commonwealth is located what is known as the "Bright Tobacco Belt," sometimes called the "Golden Belt." The special sorts of tobacco which these lands produce are grown in the same state of perfection nowhere else in the country, and the most prosperous of North Carolina farmers are those who are engaged in the culture of tobacco.

The eastern section of North Carolina is admirably adapted to the growth of garden vegetables, and trucking has come to be quite an industry in this section. The best trucking lands are found in the neighborhood of Wilmington, Goldsboro, Morehead City, New Bern, Elizabeth City, Edenton, Plymouth and Washington. This industry is not as extensive as it should be. It would be greatly enlarged in a few years if only some way could be found to secure rapid and cheap transportation to the great cities of the country.

The lowlands of the Cape Fear and other coast streams are admirably adapted to the growing of rice, the quality of which is equal to any in the world.

The fishing industries of North Carolina are very extensive and very valuable. It is believed that the largest fishery in the world is located on the waters of Albemarle sound. Within the State oysters are taken to a very considerable extent, and the clam industry is rapidly growing in both extent and importance.

The eastern portions of North Carolina are particularly rich in long-leaf pine, and the gathering of naval stores from this source is one of the principal industries of this section.

Reverting again to the mineral resources of the State, it may be said that the State is particularly rich in gold. The counties where this precious metal is most abundant, and wherein it is now being

successfully mined, are Franklin, Nash, Montgomery, Stanly, Davidson, Rowan and Cabarrus in the central part of the State, with Jackson, Macon and Henderson in the western division. While it is true that these counties are blest with the richest deposits, it is yet true that there are quite a number of counties in which gold-bearing formations are found. And it is believed that a deeper examination of some of these districts would disclose wealth in gold hitherto not generally suspected to be in existence. It may be said that much of the gold in many sections of North Carolina is found in combinations, which make it exceedingly difficult to reduce it. But it is hoped that with the steady progress of science, and its application to operative mining, means will be found to make these ores to be immensely valuable.

In the counties of Granville and Rowan there have been discovered recently copper deposits of unknown extent and apparently of great richness. These deposits have attracted the attention of capitalists, and are now in process of development.

It may not be generally known that North Carolina is rich in gems and precious stones. One sort, next in value to the diamond, namely, the "hiddenite," has

been found here and nowhere else, it is believed, in the world.

The western section of the State is particularly rich in mica, monazite and corundum, but at this writing almost nothing has been done in the way of developing the natural resources of our hills.

North Carolina as a Commonwealth is entitled to a prominent place in the history of the sisterhood of States. Here on the 20th of May, 1775, was promulgated the first declaration of American independence that was proclaimed to the world. Upon the soil of this State were fought several of the most important battles of the American Revolution, and in the civil conflict between the States North Carolina had in the armies of the Confederacy and of the Union a larger proportion of its free male population than any other State—larger, perhaps, than any other Commonwealth or country in modern ages. Its voting population in 1860, without any considerable political disqualifications among its free men, was hardly 110,000. Its soldiers in both armies numbered more than 120,000.

D L Russell

STOCK-RAISING AT THE SOUTH.

By Ex-Governor William J. Northen of Georgia.

In an address recently delivered at Nashville, Tenn., Chauncey Depew said the opportunities of this country are now at the South. The South, he further said, is practically a great undeveloped country. Both these statements are true, and the one confirms the other.

The South has not only been given, heretofore, to agriculture almost exclusively, but to one exclusive crop. From the policies adopted at the South it would appear that no crop but cotton could be successfully grown. In recent years it has been demonstrated that fruits of all kinds grow well, so much so that Georgia has been pronounced by the United States Department of Agriculture the leading peach State in the Union. In 1898 Georgia shipped more carloads of peaches than were ever shipped by any State. This is but one of the opportunities spoken of by Mr. Depew. Attention is now being drawn away from California, Michigan and other fruit States to Georgia and the South not only because of early maturity, but excellent flavor. For many reasons the South will become the great fruit belt of the States.

The East has been as exclusive in manufactures as the South has been in agriculture, not so much because of the attendant profits as because of necessity. The South has grown cotton not because manufactures were impossible, but because cotton has been very remunerative. Now that the price has greatly depreciated, this section must resort to some other means for its wealth. Fortunately, we are not shut up to one opportunity, but it is possible to make a product that has been bringing to our people only \$300,000,000 multiply itself into five times that amount.

There are no conditions required in the manufacture of cotton that are not met at the South. The mill men see this opportunity, and they are wisely seizing upon it and bringing the mills to the South, while our own people are themselves improving the profits of the main chance as they now see it. A cotton mill at Dalton, Ga., has just declared a dividend of 93 per cent., having declared 43 per cent. last year.

The West has been equally exclusive, and has made stock-raising its principal business, not so much, as was said of the

East, because of the attendant profits as because grain and grasses are the exclusive crops of that section, and the only way to utilize them to the best advantage is to turn them into stock. We cannot regard the West as a manufacturing section except in so far as slaughter-houses can be classed as such industry. Slaughter-houses are at the West simply because the cattle are there, just as cotton mills will soon be at the South because the cotton is at the South. Slaughter-houses will be established at the South just as soon as our opportunities are improved and stock is raised at the South.

These statements being true, it is easy to comprehend what Mr. Depew meant when he said that the opportunities of the country are now at the South.

If the South is to absorb the opportunities of the West as it seems to be absorbing the opportunities of the East, it is only necessary to know whether grasses will grow as profitably as at the West. This question will be easily settled by inquiry among stock farms that have already been started.

Kentucky has long been known as the State, of all others, for fine horses. Hogs and cattle and sheep can be grown with equal profit on the same conditions.

Missouri and Tennessee, doubtless, ship more mules to market than are grown in all the other States besides. This State has had equal success with hogs. Texas has reputation, as it deserves, for vast profits in cattle. In one county in Georgia there has been grown 13,000 pounds of Bermuda hay to the acre; in another 16,000 pounds of clover hay, while Gordon county has grown 9400 pounds of Lucerne and Bibb county has produced 8046 pounds.

As Georgia is fairly a representative Southern State, it is in point to know that Spalding county has grown 137 bushels of corn to the acre, Cobb 125, Wilkes 123, Thomas 119, Crawford 115 and Cherokee 104 bushels.

On the same line it is information to know that Wilkes county has grown 137 bushels of oats to the acre, Dekalb 131, Floyd 121, Schley 100 and Brooks 75.

As corn enters largely into the profits of stock-raising, it is well to know, as has already been stated, that the South grew

the largest yield of corn that has ever been grown in the States. South Carolina has this honor.

What is true of Georgia and South Carolina in these particulars is possible with the other States at the South. All these conditions go to show the opportunities for stock-raising at the South.

In addition to the crops named as specially suited to cattle, sheep, horses and mules, the South has opportunities for raising hogs not possible in other sections. Peanuts and chufas are peculiarly Southern products, and are specially adapted to the inexpensive raising of hogs. The same may be said of sweet potatoes. Berrien, Crawford and Richmond counties, in Georgia, have yielded each 800 bushels of sweet potatoes, while Brooks has grown 400 bushels and Fulton as many.

The large profit to come from these last-named crops will be found in the fact that the hogs themselves do the handling, so to speak. The crop that demands the most manipulation generally brings the least profit. Hogs at the South gather their own crops, and farmers avoid the expense of carting to them. This same statement is in a measure true of all stock.

In a more rigorous climate stock must necessarily be housed from the storms, demanding not only the building of expensive barns, but the hiring of necessary help to attend them.

Let it be granted, from what has been said, that the South can grow as cheaply the crops necessary to feed and care for stock; that the lands are very much cheaper, the climate very much more mild and the markets more accessible, while the demand is fully as great, then all the conditions are obtained for the most profitable business.

The South has too long conceded these opportunities to the East and the West—the one in manufactures and the other in stock, grain and grasses. From this time forward the conditions will greatly and rapidly change. Our farmers have been unwise in the exclusive policy they have pursued not only in the concentration of all effort upon agriculture, but to one exclusive product of agriculture. This exclusive policy, it has been shown, has been pursued by other sections, but because they were practically shut up to the one opportunity. Not so with the South, for what is possible with any section along the lines named is equally possible at the South. Not only because of the direct profits to come from the utilization of the opportunities offered, but because the helps their development will bring to the present industries pursued by our people, these changes will come in the near future.

Whilst cotton is a crop peculiar to the South, and its manufacture should be an industry peculiar to our section, it is equally true that cottonseed sustain the same relations. Cottonseed mills are mainly at the South, and all the manipulations of the seed can be more profitably handled at the South than at other points demanding freights.

Possibly as great profit is to come in the near future from feeding the meal to stock as from any one element of advantage from this new industry. This, of course, belongs to the South, and the industry will be developed here not only as an unusually profitable stock food, but the substitute it will bring for the expensive commercial fertilizers now used on our farms.

It is within the recollection of many young men of this day that cottonseed were regarded as a nuisance on the farm. Now there is an immense amount of money made from the oil, and not only the fertilizer elements left, but one of the best stock foods known to the markets.

And yet that is not all we get from this peculiarly Southern product. It has now been determined that the barnyard manure accumulating from the cottonseed is worth more than manure derived from any other food.

Sir J. B. Laws, who is authority throughout the world on such matters, values manure made from cottonseed meal as worth more than \$20 per ton. On this line the experiment station for New Jersey, I believe, found the manure from cottonseed meal to be worth \$22.44. The station gave out at that time the following table:

The manure from—	
2000 pounds of wheat bran worth.....	\$10 43
2000 pounds of cornmeal worth.....	4 84
2000 pounds of linseed meal worth.....	17 25
2000 pounds of cottonseed meal worth.....	22 44

The station found the actual cost of feeding these products, after deducting their value as manure, to be largely in favor of the cottonseed meal.

Now as to conclusions. The cotton is grown at the South, and the conditions for manufacture are, to say the least, just as favorable as at the East. Why should not the mills come to the South and this section become the manufacturing section of the continent? And the same with iron. The iron is here in inexhaustible abundance; what is to hinder the manufacture of all hardware materials at the South, from a common staple to the most intricately-constructed machinery? These factories are by no means compelled to confine themselves to the East.

Slaughter-houses are beginning to come to the South just as the cotton mills and iron foundries. If the conditions for stock-raising at the South are as favorable as at the West, why should not the business in all its details be established here? As to the profits. A slaughterhouse just beginning in this city bought a calf thirteen months old, weighing 890 pounds. The calf was fed at the packing-house exclusively on cottonseed meal and cottonseed hulls. He was sold at nineteen months old at a net profit of \$30.

890 pounds at 3 1/2 cents.....	\$31 15
1320 pounds at 5 1/2 cents.....	72 60

Profits	\$30 65
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This experiment demonstrates what will be done on a large scale in the future of stock at the South.

N. J. Norton

Alabama Iron Abroad.

Mr. Sigfried Steiner of Birmingham, Ala., who has spent a number of months this year in Europe, found there a sentiment that it is only a question of time when Europe will have to look to the Alabama section for pig-iron and probably for steel. He said:

"I saw Alabama pig-iron in Pilsen, Bohemia, used by a large foundry, gun and machine works, the celebrated Schkota, the biggest ironmaster in the Austrian Empire, and manufacturer for the government. This very concern manufactured and delivered cannons, shell and other munitions of war to the Spanish government, at the request of the Austrian government, during the Spanish-American war, in the manufacture of which Alabama iron was consumed."

"In the construction of buildings, where heretofore entirely of stone, I noticed iron and steel were now being used as extensively as in this country. The demands from this source, together with the building of ships of every character, both naval and merchant, every ship-yard abroad being crowded with orders, will bring about a continued increased demand for iron and steel which will last ten years or more, and which Europe is absolutely unable to supply."

It is within the recollection of many young men of this day that cottonseed were regarded as a nuisance on the farm. Now there is an immense amount of money made from the oil, and not only the fertilizer elements left, but one of the best stock foods known to the markets.

BIG THINGS OF ALABAMA.

By Governor Joseph F. Johnston.

I do not see how I can add anything to the information which readers of the Manufacturers' Record already possess concerning the industrial progress of Alabama. Indeed, if I should undertake anything like a full account of what has been accomplished here, I should first of all want near me a file of your enterprising and praiseworthy journal. Such a file is the best printed evidence I know of that we are progressing, for no week passes but the column devoted to new things and old things enlarged in Alabama contains gratifying facts, and sometimes the Alabama column is the largest and the fullest of all.

Just here I might call attention to the fact that the Alabama enterprises noted by you are even more conspicuous for the size of the figures employed than for the number of the enterprises themselves. These figures more than once have run into the million dollars, and a great deal can be done with that much money—a great many men can be set to work with it; a great deal of wealth produced by its intelligent investment. Yet a million dollars is a small part of the sum total put into productive industry in Alabama within the twelve months, and I shall be much surprised if the next census does not demonstrate in the cold language of comparative statistics that our mineral region here has gained more in ten years than any iron and coal district in the world.

Any review of industrial conditions in Alabama should, however, begin with agriculture, that being as yet the chief pursuit of the people, and the support of a great majority of our population. The cotton crop still holds first place as an income producer, bringing into the State something over \$30,000,000 per annum. It is an economic fact worth attention that of all the occupations of our nearly

2,000,000 of people, those engaged in the most important are not prospering, and they alone. It seems that our whole system of commerce, manufacturing and finance is so organized by governmental help and otherwise that the burdens are so adjusted as to press agriculture down first in seasons of depression and keep it down longest in seasons of revival. We can only hope that the time of the farmer is coming for participation in the revival now upon us.

The general revival in commerce, mining and manufacturing is nowhere more in evidence than here in Alabama. The wages of railroad employees have been raised, a sure sign that freights are moving. Foreign trade is contributing to the well-being of Mobile, and both imports and exports are rapidly advancing. A good deal of both belong to Alabama.

In the mineral district new mines are opening, and every available furnace is being put into blast. Some recently believed to be far out of the way and silent forever are being overhauled and prepared for active service. Many millions of dollars are being invested in the manufacture of steel and its conversion into articles of trade. Several millions are being put into cotton factories, and the building of oil mills goes steadily on. Along the railroads one notices new saw mills, small plants started cheaply to catch the season of high prices for lumber. This is one of the unfailing symptoms of prosperity in the lumber business.

In brief, if the prices of our farm products could only advance one-third as much as that of iron, Alabama would be in a universally healthful and hopeful and prosperous position.

J. F. Johnston

THE SOUTH TO LEAD IN PROGRESS.

By Charles F. Huhlein of Kentucky.

In reply to your valued inquiry "What of the future," as relating to Southern development, would say that it seems to me that, great as has been the progress of the Southern States during the past ten or twenty years, they are now only fairly at the beginning of an era of thrift and expansion that will during the next decade rival or excel the splendid history of the forward march of the Western and Northwestern States. Not many years ago

Edward Atkinson recorded his conviction that it was quite impossible for the Southern States to compete with New England in cotton manufacturing. Not many

months ago, however, there was almost a panic in New England mill circles because the Southern cotton mills were found to be doing all the business they could handle and making satisfactory profits, while the Eastern mills were

struggling along with insufficient orders and were led to reduce wages in order to better compete with the mills at the South. A few weeks since your columns presented the official report of Mr. Secretary Hester of the New Orleans Cotton Exchange, showing in the Southern States alone 459 cotton mills in operation, and that they consumed 1,399,399 bales of cotton during the year just ended. Northern mills in the same period consumed 2,100,000 bales.

It seems not very long ago that Henry Watterson, the gifted editor of the Courier-Journal, was criticised as wild and visionary in his statement that pig

iron (which was then selling at \$20 to \$25 per ton about Pittsburg) could be produced at a profit in the South at \$10 per ton. Yet for several years past pig iron has been selling freely at Birmingham and at many other points in the South around \$7 per ton, and Southern furnaces have been and are exporting iron to England and Germany, against whose iron only a short while ago we thought we needed protection.

Because of what has already been accomplished in the South, and because also of the great undeveloped resources remaining to reward the capital that may take hold, I look for relatively far greater industrial development in the Southern States during the next ten or twenty years than in any other part of the country.

The lumber trade and many other industries of the South are growing very rapidly. Last, but far from least, we have the boundless agricultural opportunities of these Southern States, and note that there is a phenomenal increase in the grain, cattle, dairying and fruit interests, with millions of dollars now being made and saved to this section by reason of the awakening of the people to the energetic prosecution of diversified-crop farming. The future looks very encouraging indeed.

C. F. Huhlein

DECENTRALIZATION OF THE COTTON-OIL INDUSTRY.

By D. A. Tompkins of Charlotte, N. C.

During the past decade consolidation of interests and centralization of manufacturing plants into large units have been the leading features in the industrial world. Whether for good or for evil, the corporation and the trust seem to be driving the individual, as such, out of business. One of the pioneer trusts of America had control of the cotton-oil industry from 1883 to 1887. At the end of this period a large corporation was formed to build a number of large mills, which for three years divided the business with the trust on the same general lines of operation.

The success of this competition, though attained by a strong corporation, encouraged more general competition, so that throughout the past ten years cotton oil has proved something of an exception to the general rule of consolidation and increasing size of plants. A large number of comparatively small mills have grown up, and, when well built and well managed, have been generally successful. The past year of prosperity has been one of phenomenal growth of small oil mills, and it seems as if every county in the cotton-growing States must soon have its own cotton-oil mill. During the last spring and summer no less than 100 new oil mills have sprung up, the average size being thirty tons of seed per day. Previous to this year there were about 300 mills, averaging in size about seventy tons. This year's addition is equal to 33 per cent. of the whole number of mills and 14 per cent. of the whole crushing capacity.

Prominent among the causes leading to the great increase of small mills is the increased country demand for cottonseed products. No business has been better advertised and none more systematically investigated and fostered by the general government and by the several State governments. Agricultural bureaus and experiment stations of each of the cotton-growing States have made exhaustive scientific and practical investigations of the products, with the result of unanimously approving of them and recommending them.

Fifteen years ago cotton planters were congratulating themselves on finding sale for cottonseed, which had hitherto been thrown away, and which had been a positive nuisance. But at that very time the oil mills had cottonseed hulls on their hands as a waste product and a nuisance. They were utilized as fuel to run the mills, but even that did not consume them all. Compared with the average price paid for coal, cottonseed hulls are worth for fuel less than \$1 per ton.

During the past ten years it has been demonstrated that the real value of cottonseed hulls is as a foodstuff for cattle. As such the true value ranges from \$4 to \$10 per ton, according to the prevailing price of other foodstuffs. The large mills have made great efforts to promulgate this fact, and have even fed large herds of beef cattle on their own account for the purpose of utilizing the hulls and for advertising their value, so that now the value of all cottonseed products is well known in the most remote districts.

With the understanding of the uses of cottonseed meal and hulls as foodstuff for cattle, there came an increasing demand for these products from the country districts. And then the country districts began to discover that they were shipping away their cottonseed and buying back only a part of them, and paying out, counting freights and hauling, about as

much as they received for the seed. Thus the idea of country mills took firm root.

There are two ways in which cottonseed-oil-milling is made to pay: (1). Building a large mill in a railroad center and elaborating the processes to a high degree. (2). Building a small mill in a small place, with scant railroad facilities, and depending on home demand for all products but oil.

The large mill in a railroad center draws seed from a wide scope of country, and is not hampered by local competition in any one market, because it can easily abandon that market for another one equally accessible. Likewise, if products are abnormally low in one locality, it can sell equally as well in another. And finally, if the domestic markets become crowded, it is in a position to ship out products in such quantities as to justify export business. This is a most important consideration, for the reason that the recent average exports of cotton oil have been about 30 per cent. of the total production, and of meal and cake about 50 per cent. The large mill is located where skilled labor is more available, and the extent of its business is such that it can pay good wages to a few skilled men to superintend the carrying of all operations to their furthest limits. The planter considers cottonseed one of his finished products. The country mill considers crude oil, meal and loose hulls as finished products. But highly developed mills turn out several grades of refined oils, put up for export in the best barrels, and sometimes put up for fine domestic consumption in tins or in glass. Some go further and make lard compound or lard substitutes and soaps; some make fertilizers of the meal and cattle food of the mixed meal and hulls. Some utilize this food on the premises and fatten cattle for the market. There is a broad field for development on these lines by indefinite extension of the operations, for example, by slaughtering and packing the cattle fed on meal and hulls. In slaughtering, the by-products may be utilized and further manufactured. The tallow might be refined and combined with cotton oil for lard substitute, thus once more, as it were, combining the cotton oil with its original companions, meal and hulls.

Refinements of manufacturing depend more upon skill than upon raw material. High cost of cottonseed and high freights from distant points grow to have less and less influence on the cost of highly-finished products. It is analogous to the manufacturer if fine cotton cloth, worth \$10 per pound, where the original cost of raw material—be it ten cents or forty cents per pound—is, at most, but a small per cent. of the value of the finished product. For this reason, cotton mills situated at a distance from the cotton field may continue to prosper if making fine goods. For this reason, cotton-oil mills with high-priced seed may continue to prosper if they have skill and ability to manufacture fine goods.

On the other hand, there are great possibilities for small country oil mills. They are in proximity to the raw material, and are relieved of freight rates both on the raw material and on most of their products. The oil that may be extracted from cottonseed by the processes now in use constitutes but 15 per cent. of the whole weight of the seed. Hence, if a mill can buy seed from wagons at its doors and sell its meal and hulls over the counter, so to speak, it has saved freight

on 100 per cent. of raw material and 85 per cent. of finished product. Working on this basis, and not attempting to operate a mill larger than can supply and be supplied by its wagon territory, there is every hope of permanent success for country oil mills. They are analogous to the cotton mill in the heart of cheap cotton territory manufacturing coarse goods at ten cents per pound, where the cost of

cotton at six cents is a large proportion of the value of the product. They have almost a prohibitive advantage, on this particular line of goods, over competitors in other districts where high prices prevail for raw material.

AT Deep Places

ARKANSAS, A VAST NATURAL STOREHOUSE.

By George R. Brown of Arkansas.

Appreciating the honor of an opportunity of telling to the world something of this great State of Arkansas and giving my opinion of its relation to the nation in the future, I beg to thank you in the name of the Little Rock Board of Trade and the Arkansas State Board of Trade, of which organizations I have the honor of being secretary. Shakespeare evidently had in mind the business men when he remarked: "An honest tale speeds best being plainly told." Off here in the great Southwest, west of the Mississippi river, in a country of boundless resources, we are indeed close to nature. We have within our borders no great metropolis, and none of the troubles growing out of the vast immigration of undesirable, illiterate foreigners. This State is thoroughly American, loyal, patriotic, enterprising, and for America, right or wrong. I cannot be accused of writing as a prejudiced Southerner, for I am a New Yorker by birth, and half my life has been spent north of Mason and Dixon's line. Coming to Arkansas upwards of twenty years ago, when it was without railroads, with population of less than 1,000,000, and in the throes of reconstruction, I have seen the State fight her way out of her troubles, and now mounting the plane of empire.

She is gridironed with railroads, her prairies and mountains are dotted with prosperous cities and, while her per capita wealth is the lowest, she pays more for public education according to her population than any other State in the Union. With more than 3000 miles of navigable river within her borders, she has vast fields of undeveloped coal and great areas of virgin forest. She has been held back for one reason and another, until today she is a vast storehouse prepared by nature for the benefit of man. The area of the State is 52,198 square miles, and it extends through nearly three and one-half degrees of latitude, occupying an incomparable position in the temperate zone. I think that in the years of the future, when the anarchists in the North grow stronger in numbers and the populists grow wilder and more desperate with defeat, there may come a consolidation of the elements of defeat and dissatisfaction, and there will be a series of riots amounting to revolution in the North.

I think that today there is more genuine love of country and more disinterested patriotism and respect for Old Glory in the South than there is in the North. In the days of trouble which I forecast it will be the men of the South who will seize their arms and rush to the North to preserve the Union and uphold the constitution of our beloved country. In the South there is little foreign immigration, by far the greater proportion being Americans for generations, with a sprinkling of American-born descendants of the better class of foreigners. The people of this State are prepared not only to succor the North in battle, but to feed them after. Here they can find homes where there are no long cold winters and

the industrious farmer produces two crops in a single season. The proportion of whites to blacks is at least 1,400,000 to 400,000, and there are no race troubles. There is work here for everybody, and one can find colored carpenters and brick-masons as well as white. While there are separate buildings in which the youth of the two races are educated, those for the colored are the counterpart of the others. There is no distinction. The colored people are good servants, good workmen and honest customers. There is no clamor for social recognition. They do not want it, and know that it is unattainable if they did, and therefore it is eliminated.

It might interest your readers to know that from 1689 to 1766 Arkansas was under French rule, and from 1767 to 1803 under Spanish dominion, being at that time a part of the territory of Louisiana, and that she came into the United States at the time of the "boom" when Jefferson made his celebrated real estate deal that today rises up to rebuke the demagogues that run up and down the land crying there shall be no expansion, and, a la Edward Atkinson, offering aid and comfort to the enemy and placing a premium on desertion and disloyalty. It will interest those readers to know that here is a "strong-box" awaiting the magic touch of capital to open, develop and blossom like the rose. With an area of 35,500,000 acres, less than one-third of it is under cultivation, and even Uncle Sam has here 4,000,000 acres free to his sons and daughters, while the State offers for a nominal sum 1,364,022 acres. It is a wonderful country, possessing, among other attractions, the great Hot Springs, the Baden Baden of America, where Uncle Sam acts as host. It is in this State where one finds an area without railroads filled with zinc, lead, coal, marble, onyx, etc., larger than the States of Connecticut and Rhode Island combined. It is from Arkansas that Eastern manufacturers of steel rails get their manganese, Pittsburg secures its bauxite, and Europe buys its staves, and the navies of the world purchase their boat-oars. This Arkansas is an old country, replete in legends, proud of its chivalrous sons and beautiful daughters, and yet a new country—new as the mining camp of the border—today undergoing an evolution that will add millions of dollars to its wealth and countless of thousands of enterprising men to its population.

Wilmington, N. C., will make an effort to secure at this session of Congress an extra appropriation for the improvement of its harbor, particularly the dredging of a great basin along the water-front.

It is announced that the movement for a permanent exhibition at Nashville of that city's manufactured products is working to a successful conclusion.

Mr. John T. Norman of Columbus is reported as stating that in Southwest Georgia the farmers are settling debts of two and three years' standing.

BRIGHT FUTURE OF BESSEMER.

One of Alabama's Manufacturing Centers, Modern, Thoroughly Progressive and Rapidly Developing.

[Staff Cor. Manufacturers' Record.]
Bessemer, Ala., December 5.

Bessemer is a town of great possibilities. It has already accomplished much. It is destined to accomplish much more. What has been done there, viewed in connection with its location, its character and the zeal which has inspired it, is a certain promise of rich attainments hereafter. Several years ago Hon. A. S. Hewitt of New York, than whom there is no better authority in the iron trade, said of Alabama: "It is the only place upon the North American Continent where it is possible to make iron in competition with the cheap iron of England, as measured not by wages paid, but by the number of days' labor which enter into its production. The cheapest place on the globe until now for the manufacture of iron is the Cleveland district, in Yorkshire, England. The distance of the coal and iron from the furnaces there averages about twenty miles. Now in Alabama the coal and the ore are in many places within half a mile of each other. This region, so exhaustless in supplies, so admirably furnished with coal, so conveniently communicating with the Gulf, will be of infinitely more consequence to us for its iron than it has ever been for its cotton. I think this will be a region of coke-made iron on a scale grander than has ever been witnessed on the habitable globe." These were strong words. They were not beyond the truth. As Mr. Hewitt's prophecy is being unfolded into fact, a group of new cities has arisen in Alabama.

Among them is Bessemer, noted for the fact that it possesses immense works for the manufacture of cast-iron pipe, the largest of the kind in the United States, if not in the world. The works themselves are a pretty broad foundation of a flourishing community. But there are in addition in the city five blast furnaces, a large rolling mill, fire-brick works, a foundry and machine shop, an ice factory, a dynamite factory, three large brick-yards and an electric-light plant, and several other large industries are about to locate here. A site has been selected and ground has been broken for the erection of works for the manufacture of soil pipe. Mr. F. B. Nichols, formerly vice-president of the Howard-Harrison Company, has been in the East, and has secured money to erect another iron-pipe plant of great proportions. A strong company with a capital is looking to Bessemer for a location of its plant, and I am told that there is to be another large industry to be established here before long. As a matter of fact, anyone seeking a lucrative business based upon iron or steel would be certain to find it here, as the city is so near coal, iron and limestone, and the prospective investor in manufacturing plants is offered remarkably liberal inducements to settle here.

The available land in Bessemer is largely owned by the Bessemer Land & Improvement Co. This company not only has available sites for industries upon which the material development of the city rests, but it offers sites for manufacturers upon a policy formerly established by it that is almost irresistible in its persuasiveness. Bessemer, through this company, offers a free site to any industry of any consequence at all which is started within the city limits. This means a vast deal, not only of promise, but of fulfilment. The acceptance of a free site by any firm or corporation as a bonus to establish an industry relieves the newcomer of risks, in that there is no neces-

sity to create values, for indeed values are actually received at the start. And the building of a large industry really adds considerably to the value of the free site. The newcomer, moreover, becomes a sharer in other advantages enjoyed by the older inhabitants of the city. He finds a flourishing, most eligibly-situated town, feeling the inspiration of activity in a number of great industries, and enjoying conveniences and comforts of various kinds.

Bessemer is not a mere manufacturing town, but has become attractive as a place of residence, and many of the homes have all the elegance of those in much larger communities. The stranger is greeted by a warm-hearted, thrifty, progressive class of persons, hospitable in both home and business life, and enjoying residence in a city lighted by gas and electricity, with an excellent water supply, good drainage and sewerage, contributing to comfort and healthfulness, born of a glorious climate. The broad macadamized streets, substantial public buildings, two large hotels, two banks, ten churches, brick business blocks costing \$360,000, a first-class free public-school system, an admirable city government, all contribute to personal comfort and to social, business and religious progress.

Railroads are an important factor in the growth of any community. The excellent facilities in this respect which are enjoyed by Bessemer have had much to do with its healthy prosperity. There are five trunk lines here, and there are indications that at least two more, the Mobile & Ohio and the Mobile & Western, the latter a road to be constructed upon a survey that will give no grades to tidewater greater than twenty-five feet to the mile, will come here. There is a likelihood, also, from what I hear, that the Seaboard Air Line and the Illinois Central Railroad will come into this region; in fact, no railroad yet to be built contemplating business upon coal, coke, iron or steel can afford to omit Bessemer from its calculations. It must be borne in mind, too, that Bessemer has two miles of water front on a never-failing stream, and that this, with its easy connection with five great railroads, all giving the same rates of freight as those enjoyed by the sister city Birmingham, places the city in a most advantageous position as far as transportation is concerned. Two dummy lines connect Bessemer with Birmingham.

Few cities in the Southern States have attracted more attention in recent years than Bessemer. Contemplation of its rapid growth and the remarkable expansion of its manufacturing and industrial interests leads to the conviction that the limits of its possibilities have by no means been reached. Its enterprising citizens have built up flourishing industries where once there was nothing but vacant fields. The population has increased, and is of such an enterprising, active character that the city is quite a prospering manufacturing center.

This transformation of Bessemer from an ordinary country town has been accomplished within the last few years. Its explanation is to be had in the fact that the natural resources and attractions of the place are such as to make its inevitable destiny that of a great city. The progress made in so short a time could not have come to any place except one full of advantages for the manufacturer and the business man, overflowing with opportunities for the investment of capital and enterprise, and possessing environments which make life worth living. Its destiny has undoubtedly been hastened by the energy and liberality of the Bessemer Land & Improvement Co., which, in its own history, indicates the prosperous con-

dition of affairs. It is well known that the stock of the company, which, during the severe depression, went begging at \$4 a share, cannot now be bought at \$25 a share, this increase in the value of stock demonstrating the broad prospects of the city and the wise and conservative management of the company's affairs. The Bessemer Land & Iron Co. has a large number of lots in the town admirably situated for homes and business houses, and sells them at prices ranging from \$5 to \$100 a front foot. As I have stated, the company also gives free sites for manufacturing plants, and this, in making its other property more marketable, is adding to the general progress of the city. The company also owns and operates the Belle Ellen coal mines, situated near Blocton, and supplies with coal five of the largest railroad systems in the country.

It is natural that a city possessing so many advantages for the manufacturer and merchant, with a progressive company like the Bessemer Land & Improvement Co. back of it, cannot fail to make great strides. Whoever comes to investigate Bessemer may be prepared, not for disappointment in his expectations, but for surprise at the excess of the fulfilment of them. He will find a town that is attractive in appearance, with inviting business possibilities, and although it is unreasonable to expect nature to be so favorable as to confer an absolutely perfect climate upon one point, salubrity of air and healthfulness of surroundings make Bessemer an ideal place of residence. Many other important facts will impress the visitor, such as the number of churches and their architecture and the appearance of the schools and the business houses. While the population of Bessemer is now only about 6000, it is reasonable to expect that within a few years the city will be vieing with Birmingham. It has a bright present and a brighter future. I predict big things for Bessemer.

I. S. FIELD.

PROGRESS OF FLORENCE.**Development of Industries in the Alabama City.**

[Special Cor. Manufacturers' Record.]

Florence, Ala., December 5.

There is perhaps but one other city in Alabama which has made such phenomenal industrial progress during the past twenty months as has been made by the city of Florence, Lauderdale county, situated at the head of navigation on the Tennessee river, and within easy distance of the great iron and coal fields of Tennessee and Alabama.

To sum up the progress briefly even will require all the space allotted, and it may be put down as follows:

The Florence Cotton Oil Co., organized during summer of 1898, C. W. Ashcraft, president, capital stock \$30,000, for the manufacture of cottonseed oil. This company declared a dividend of 16 per cent, during the first season's operations, and will this season increase its output nearly double.

Nicholas Shingle Mills, organized January 1, 1899, by Joseph A. Nichols, capacity 40,000 shingles per day. This plant's machinery was sold November 1 to E. J. Chandler of Jasper, and Mr. Nichols is negotiating for the purchase of a larger outfit.

Florence Milling Co., composed of Messrs. J. C. Rea, T. J. Rea and J. J. Fleming. Mill put in operation about January 1, 1898. Capacity 150 barrels flour and 750 bushels cornmeal per day.

Mint Springs Stave Co., organized August 1, 1899, capital stock \$2000; J. J. Fleming, president; T. J. Rea, vice-president; J. C. Rea, secretary and treasurer.

Manufacture slack-barrel staves at the rate of 25,000 per day.

On September 14, 1899, the Bellamy Planing Mill Co. purchased the old Nichols planing mills. Dr. A. D. Bellamy, president, and B. A. Lawton, general manager. This company has largely increased business, and carries 1,000,000 feet of lumber in stock.

The Tennessee Valley Fertilizer Co. was organized January 1, 1898, with John W. Fry, president; John R. Gracey, secretary, and Lee Ashcraft, general manager; capital stock \$20,000. All grades of fertilizer manufactured, and output this year will be six times as large as last season.

The Ashcraft Cotton Mills was organized July 10, 1899, with Cyrus W. Ashcraft, president; John T. Ashcraft, vice-president, and Samuel S. Broadus, secretary and treasurer; capital stock \$50,000, all paid up. With the Ashcraft Cotton Mills has been merged the Cotton Oil Co., increasing the capital stock to \$80,000. This company has also just completed the erection of a round-lap cotton ginnery, which will be run in connection with the cotton mills.

During the summer just passed the Sloss-Sheffield Company of Birmingham purchased the Philadelphia furnace. This furnace is now being repaired at an expense of \$50,000, and will go into blast by the first day of January, 1900. The Sloss-Sheffield Company paid \$117,500 for the Philadelphia, and also purchased the Ensley furnaces at Sheffield, which will go into blast about the same time as the Philadelphia.

During the past twelve months the Cherry Cotton Mills and the Florence Wagon Factory have put in a number of improvements at an expenditure of at least \$25,000, and the wagon-factory capacity has been increased to 15,000 wagons per year.

In the same period the city of Florence has built \$12,000 worth of paved streets, using chert or hard pan, has erected a new schoolhouse in East Florence, put in fifty new gas lamps (Welsbach) and many other improvements, and is now engaged in the erection of a new schoolhouse for colored pupils at a cost of \$2500. The city next year also contemplates the putting in of a sewerage system.

The Florence Water Co. has extended its system to East Florence within the past six months, and the gas plant has made great extensions. There is at present much talk of an electric railroad from the city to East Florence, connecting the residence portion of the city with the manufacturing district, but this project has not yet taken definite shape.

There has not been a failure of any kind in the city during the past year, and business of every description is upon an absolutely solid basis. The era of prosperity that has come to this little manufacturing center has never before been equaled.

A. JACK FRANTZ.

What Railroads Do.

The railroads of the country have long been the bugbear of the demagogue. Upon them he has vented all his spleen, all his bitterness and all his vituperations; but the railroads are potential factors; they are here, and we cannot get along without them, and we would not wish to get along without them. The railroad marks the dividing point between the savage and the civilized man. The railroad means quick transference of the individual; it brings people together; it makes people know each other, and in all things for the upbuilding and development of the country, in spite of the demagogue, the railroad always takes an advanced part.—Memphis Commercial-Appeal.

ON SOLID FOUNDATION.

A Rare Combination of Iron and Coal Properties.

Leading New York, Baltimore and Richmond Men Interested in an Alabama Enterprise.

About a year ago, before the boom in iron was foreseen, and when prices of all mineral properties in the South were at the lowest, options were secured on a number of the best coal and iron properties in Alabama at remarkably low prices. After some months of negotiation these properties were brought together into a consolidation organized as the Alabama Consolidated Coal & Iron Co., with a capital stock of \$5,000,000, of which one-half is preferred 7 per cent. cumulative and the other half common stock.

Included in these purchases were the Clifton Iron Co., owning one of the most noted brown-ore properties in Alabama, having about 30,000 acres of land, and with two furnaces located at Ironaton; the Standard Coal & Coke Co. of Tuscaloosa county, owning 32,000 acres of the choicest coal land in the State, with a long record of profitable operation and regular dividends; the Gadsden furnace, a first-class plant of 200 tons daily capacity, and a red-ore property adjacent having a continuous vein of ten miles of red ore; the Mary Pratt furnace and thirty-three acres in the center of Birmingham, and the Gate City properties, including about 1800 acres of land adjacent to Birmingham, noted as one of the most remarkable mineral properties in the South. In addition to these properties, which were originally put into the consolidation, a number of additional coal and iron-ore tracts have been purchased, so that the company now has about 75,000 acres of land, four furnaces and coal mines which at present are putting out about 1000 tons of coal a day, but which, with new openings now being made, will give an output of about 2500 tons a day within the next month or two. These properties, which have been examined by the ablest experts, form a combination that could scarcely be duplicated, and certainly could not be duplicated as going properties for less than about double the prices paid. Every property has been paid for in full; there is no indebtedness or incumbrance of any kind on any of them, and no bonds have been issued.

At the start ample capital was provided for the purchase of the properties, for the enlargement of the coal output to about 2500 tons a day, for the building of 400 additional coke ovens (200 now being in operation), for the repair and enlargement of the furnaces and the opening of additional ore mines, and for working capital.

Messrs. Ricketts & Banks of New York, who investigated the Standard coal property, estimated that it contains of available coal easily mined 100,000,000 tons, which is sufficient to sustain a daily output of 2500 tons for about a century or so. There are other large coal mines owned by the company in addition to this property, purchased since the company was first organized. Thus the company has its own coal mines and coke ovens, its brown ore and red ore and an unlimited supply of limestone, and is able to assemble its materials for iron-making at the lowest cost without regard to the rise or fall of prices on ore or coal in the open market to companies that have to purchase these materials. It is a self-contained company, owning everything necessary to make its business pre-eminently successful, and thus is not dependent for prosperity upon good times, but without regard to the ups and downs of business

conditions will be able to make large money.

Furnace No. 1 at Ironaton is turning out about 160 tons of iron a day. The furnace at Gadsden, which has a daily capacity of 200 tons, has been completely overhauled and repaired, and will be ready for blast during December. The second furnace at Ironaton, which has been nearly rebuilt, will be ready to blow in shortly afterwards, while the fourth furnace (the Mary Pratt) will be available somewhat later on. The aggregate capacity of these furnaces is about 180,000 tons of pig-iron a year, but the company estimates the probable output at about 140,000 to 150,000 tons, allowing a margin of 30,000 to 40,000 tons for delays and stoppages. This iron is now being sold for delivery during 1900 at a profit of about \$7 a ton, which ought to make a net profit to the company during 1900 of about \$1,000,000, while the coal property, selling its coal in the open market and having a large trade even in Mexico, has paid regular dividends since 1892, and, it is estimated, will yield a net income of \$150,000 to \$175,000 a year. It is estimated that, after paying the 7 per cent. preferred stock and a good dividend on the common stock, there will be sufficient profits to lay aside a surplus equal to the aggregate dividend on both stocks. This can certainly be done during such a period of prosperity as at present, while even in the dullest times there ought to be no difficulty in paying the regular dividends on both preferred and common stock out of current earnings.

The organization of this company was brought about through the International Trust Co. of Baltimore and Mr. John E. Searles of New York and their associates. The directors include Mr. Abram S. Hewitt, widely known as one of the world's greatest authorities on iron and steel; Mr. John E. Searles, Gen. Samuel Thomas, Mr. John Skelton Williams, president of the Seaboard Air Line; Mr. J. W. Middendorf of Middendorf, Oliver & Co., bankers of Baltimore; Mr. Douglas H. Gordon, president of the International Trust Co. of Baltimore; Mr. Richard H. Edmonds of Baltimore, and Messrs. T. G. Bush and F. M. Jackson of Birmingham. Messrs. Bush and Jackson have been identified with the iron and coal interests of Alabama for many years, Mr. Bush having been president of the Clifton Iron Co. and the Shelby Iron Co., and Mr. Jackson the manager of the Standard Coal & Coke Co. They rank among the most successful men of the South, and the Alabama Consolidated Coal & Iron Co. is more than fortunate in having them as its active managers.

The Alabama Consolidated Coal & Iron Co.'s furnaces and mines combine all of the distinctive advantages which have enabled Alabama to produce pig-iron at a lower cost than any other place in the world. Its inexhaustible supplies of coal, iron ore and lime rock, convenient to direct railroad transportation to its furnaces and thence to the markets of the world, place this company in a position to compete on the most advantageous terms with the most favored manufacturers of pig-iron and miners and shippers of coal and coke. The syndicate which made this combination has already, it is understood, disposed of a considerable amount of the securities of the company to investors, and may give the public an opportunity to subscribe to the balance next spring through the International Trust Co. of Baltimore.

Only a few thousand dollars are needed to complete the \$100,000 bonus of Little Rock to secure the construction of the Arkansas Northern Railroad.

CENTERED IN NORFOLK.

Port, Railroad Terminal, Manufacturer and Trader.

[Special Cor. Manufacturers' Record.]

Norfolk, Va., December 5.

The greatest railway terminal in the South, on one of the world's greatest harbors, is the boast of Norfolk. Around Hampton Roads, called many years ago by Commodore Maury "A King's Chamber Among the World's Harbors," are growing up a number of rapidly-expanding trade and commercial centers, such as Portsmouth, Berkley, Lambert's Point, Pinner's Point, Hampton, Newport News—all more or less tributary to Norfolk, the chief city of that region. The progress of these places inures to the advancement of Norfolk, as that city must to a large degree be to the entire Hampton Roads region what New York is to Brooklyn and Jersey City. As a terminal point for railroad systems, Norfolk holds a commanding position. It is a seaboard terminus of the Southern Railway system, with its 6000 miles of road; of the Seaboard Air Line system, which will soon embrace about 3000 miles; of the Norfolk & Western, reaching out through the great coal regions of Virginia and West Virginia to the grain fields of the West, of the Atlantic Coast Line, Norfolk & Southern, Norfolk, Virginia Beach & Southern, New York, Philadelphia & Norfolk and Chesapeake & Ohio. These roads put Norfolk in close communication with every section of the country, and with the water competition of the Old Dominion Steamship Co. to New York, Merchants & Miners' Transportation Co. to Boston and Providence, Baltimore Steam Packet to Baltimore, Clyde Line to Philadelphia, Norfolk & Washington Steamboat Co. to Washington, Virginia Navigation Co. to Richmond and Baltimore, Chesapeake & Richmond to Baltimore, her merchants and manufacturers enjoy the lowest rates for freight and transportation. Few cities in America have such a concentration of railroads as is found here. Its interior waterways give it access to the great lumber and trucking regions of Carolina; its coastwise and foreign steamship service crowds its magnificent harbor with hundreds of steamers, large and small, and gives it excellent shipping facilities to American and European ports.

The city has an estimated population of nearly 75,000, a gain of 100 per cent. in ten years, exclusive of immediate suburbs, all within a radius of five miles, while Portsmouth, Berkley, Brambleton, East Brambleton, Riverside, Lambert's Point, Park Place, Villa Heights, South Norfolk, West Norfolk, Pinner's Point, Port Norfolk and Scottsville have a population of 48,000. Norfolk has water works owned and operated by the city, a thorough system of sewerage, and, of course, electric railways and lights and other facilities of all progressive cities. It has five hotels, twelve public-school buildings, forty-six private schools, beside a business college and a school of pharmacy, sixty-five churches of various denominations and a number of charitable institutions.

Norfolk is the largest peanut market in the world. Its receipt of peanuts in 1898 were more than 500,000 bags. In the immediate vicinity of the city are fourteen large lumber concerns, handling at least 500,000,000 feet of lumber annually. From the trucking interests in the neighborhood of the city from \$3,500,000 to \$7,000,000 are annually returned. Twenty-three large oyster-packing establishments handle annually 2,500,000 bushels of oysters and employ 2200 persons.

Other industrial enterprises of the city include three establishments manufacturing farm implements, six cotton and knit-

ting mills, ten fertilizer factories, seven peanut-cleaning establishments, two flouring mills, a brewery, two wood-creosoting plants, several cotton presses, foundries, machine shops, beside individual enterprises for the manufacture of wagons, coaches, cigars, candy, celluloid goods, barrels and boxes, bricks, fences, furniture, paper boxes, silver-plated ware, silk, peanut oil and meal and other goods. These show that the great advantages of Norfolk as a manufacturing center, as well as a commercial emporium, are becoming recognized.

Norfolk is the concentrating point for:

(1). The vast lumber interests of Eastern Virginia and Carolina, giving that city the handling of 500,000,000 feet a year.

(2). The cotton from the country tributary to its many railroads, the average receipts being about 500,000 bales a year.

(3). The world-famous Pocahontas coal, of which about 2,500,000 tons are annually exported through Norfolk.

(4). The pig-iron of Southwest Virginia, and even some from Alabama, seeking a foreign outlet.

(5). The oyster and fish business of the lower Chesapeake, and the vast trucking interests of the adjacent country, the oyster shipments aggregating about 2,500,000 bushels annually, while the trucking business in good seasons runs to \$8,000,000 a year.

(6). The value of corn, cotton, wheat and other exports from Norfolk has averaged \$15,000,000 annually, which, with the new increased facilities, will be greatly increased in the future.

With these advantages, with the industrial progress already made, with the great government shipyard and the vast shipbuilding plant at Newport News, employing 5000 or 6000 hands, both of which have established a strong position for skilled mechanics, Norfolk has a right to extend an invitation to manufacturers and capitalists seeking an attractive field which has every natural advantage and an assured future. Norfolk's destiny as one of the world's leading seaports and as a great manufacturing center is fixed. On these points it invites the most thorough investigation. The Board of Trade, which is actively endeavoring to advance the industrial interests of the city, is prepared to furnish full information as to the varied advantages of Norfolk.

Facts for Factories.

[Special Cor. Manufacturers' Record.]

Norfolk, Va., December 6.

Fully 50,000 people are connected with the great lines of industry represented in and around this seaport, such as 15,000 to 25,000 hands in the trucking industries, 12,000 to 15,000 in the fish and oyster line, 2500 in the lumber business, 500 in the peanut business, about the same number in the coal business, 2500 to 4000 in the government navy-yard, 1000 in the cotton mills, 6000 or more transportation employes, besides 6000 to 10,000 in the miscellaneous lines of industry. All this army of 50,000 or more workers get their pay daily, weekly or semi-monthly, making them, to all intents and purposes, factory hands. With our low-priced and abundant "raw material," our "cheap labor," low "freight rates" and the finest of all "distributing points" in the United States, our mild, delightful and even "climate" and numerous other weighty advantages, we should have another industrial army of 50,000 or more workers here in factories of various kinds. From the "raw material" to our facilities for placing the "finished product" before the "consumers," this port has no superior, and we doubt its having an equal, all things

carefully considered. In manufacturing at the present time all things must be carefully considered. When our many and weighty advantages are once known to the manufacturing world in general, we shall have no difficulty in securing hundreds of enterprises for this seaport. For particulars write Messrs. Jeffers & Darst, industrial agents for Eastern Virginia and North Carolina, 351 Main street, Norfolk, Va.

CONTROLLING THE JAMES.

Work of the Virginia Electrical Railway & Development Co.

The projected opening in March next of the operation of the Virginia Electrical Railway & Development Co. at Richmond, by which the water-power of the James river will be converted into electric-power, will be another triumph of the application of modern science to electricity. It is now expected that the plant will start with an initial capacity of 14,000 horse-power, an increase of from 300 to 400 per cent. over its present water-power. Cheap power will be furnished for manufacturers, and for the purpose of introducing new industries manufacturing sites in the town of Manchester will be supplied to manufacturers using the company's power. Manchester is on the Seaboard Air Line and Southern railroads, and is accessible by several other railroad lines. All industries established on this property are perpetually exempt from taxation.

Richmond is located on the James river, at the head of navigation and at the foot of the James river rapids, with a population, urban and interurban, estimated at 125,000. Its assessed values in 1898 were over \$68,250,000, and it has a substantial and steady growth, with splendid business facilities. It has a banking capital of \$6,389,939; bank resources of \$21,007,987.22; bank deposits of \$11,037,772.96, showing an increase of resources in 1898 of over \$1,250,000, and an increase over 1890 of nearly \$5,500,000; an increase of deposits in 1898 of over \$1,000,000, and an increase over 1890 of \$2,250,000. Bank clearings in 1898 were \$133,618,376.10, an increase of over \$17,250,000. It is the largest tobacco-manufacturing center of the South, its iron industries being next in importance with the only locomotive works in the South. The mileage of the railroads centered there is 14,000, with two new railroads in contemplation. There is every indication that in 1899 there will be greatly improved business conditions, and that there will be a larger development of manufactures, with the consequent larger employment of labor, with all that such an increased population means in the progress and growth of the city.

AT ROANOKE RAPIDS.

Industries Developing with the Use of Cheap Water-Power.

The Roanoke Rapids Power Co. of Roanoke Rapids, N. C., has within two years converted a cotton field into a prosperous industrial town with a population of over 1000, a knitting mill, a print-cloth mill, a box factory and a brick-yard. This town of Roanoke Rapids, the making of which has been one of the most remarkable instances of development in the country, is about five miles from Weldon, N. C., on a branch of the Seaboard Air Line, and is within five miles of the Atlantic Coast Line, which promises to build a connecting branch. The property of the company upon which the town is situated consists of nearly 2700 acres, and the efforts which are being made to further its development, added to its natural beauty and ad-

vantages, will make it one of the most attractive towns in the South.

A charge of only \$10 per horse-power per annum is made for water-power, and sites are free. Taxes are not more than half those paid by New England mills, and no town taxes are imposed on mills. Cotton is taken direct from the grower to the mills, saving more than \$3 a bale over New England mills, and labor can be secured at a net cost per pound of at least 33 per cent. less on the same class of goods. Buildings are constructed 25 per cent. cheaper, and the State laws are most favorable to manufacturers. The company can supply ample power for the establishment of a number of plants employing from 500 to more than 1000 horse-power each, and can extend its facilities so as to furnish in all over 20,000 horse-power.

South Carolina Quarries.

Editor Manufacturers' Record:

The fact is being developed that South Carolina is forging to the front as the granite State of the Union. Red, white, gray and blue deposits are located throughout her borders only awaiting development. This is especially true of the county of Fairfield, which lies immediately above and adjoining Richland, in which is located the city of Columbia, the capital of the State.

Two railroads traverse the county its entire length, and it is between and along these roads that most of its granite is located.

This article is written to call attention to a set of quarries recently chartered and capitalized and known as the Fairfield Granite Co., of which A. E. Davis, Monticello, S. C., is secretary, on and near one of these railroads, a branch of the Southern system, running from Columbia via Asheville, N. C., to the northwest. These possessions consist of five great deposits—the "Lupo," the "Moody Hills," "Guignard," "Brick Church" and the "Rocky Creek," and embrace ownership in fee-simple and mineral rights on 1600 acres of land. The "Lupo"—mineral rights on 600 acres six miles from railroad, large deposits of ledges and boulders of both gray and blue granite. The "Moody Hills"—mineral rights on 450 acres four miles from railroad. The deposits here are immense, inexhaustible, and the facilities for quarrying unsurpassed. The stone is of fine texture, and is gray and light blue, and regularly dotted with black spots, that make it a novelty.

The "Guignard"—mineral rights on twenty-five acres, a solid ledge of several acres lying most admirably for quarrying, contiguous to and very similar to "Moody Hills."

The "Brick Church" deposit consists of two acres, boulders and ledge, in fee-simple, within a mile of "Moody Hills," and has been pronounced by numbers of competent judges the finest monumental stone in the United States. It is blue in color, exceedingly fine-grained, free from blemishes, hammer dresses very white and polishes a beautiful blue. The working qualities of this stone cannot be excelled.

The "Rocky Creek" deposit—mineral rights on 500 acres of land, with numerous outcroppings of granite. The main deposit, a huge ledge of twenty-five or more acres, is within a half-mile of Blair's Station, forty miles northwest of Columbia. This granite is uncovered in the bed or run of the creek for a distance of more than a half-mile. At one point for a distance of 600 to 800 feet it rises at an angle of about forty-five degrees immediately from the run of the creek to a height of forty to fifty feet, showing areas of nude stone of 2500 to 3000 square yards. The remainder of hill of granite is

covered by one to six feet of earth, which can be sluiced away with water from the creek at a trifling cost. This is granite of fine texture, both blue and gray, and its working qualities are unsurpassed. It is highly adapted for dimension stone for all purposes, Belgian blocks, etc., and is besides a remarkably handsome monumental stone, hammer dressing and polishing beautifully. T. W. WOODWARD.

Rockton, S. C.

A Promising Town and a Cotton-Mill Enterprise.

It is quite probable that the most uniformly successful industry in the United States has been the cotton-manufacturing business of the South. Through the long period of depression, when other industries everywhere were seriously depressed, cotton mills continued to earn large profits and pay regular dividends. As a result of this, one of the most popular investments now before the country is stock in new Southern cotton mills.

A company is now being organized by Mr. S. Wittkowsky of Charlotte, N. C., president of the Blacksburg Land & Improvement Co., to build a \$100,000 cotton mill at Blacksburg. Admirably located, as Blacksburg is, in the Piedmont region of South Carolina—a region in which cotton mills have been notably successful—it has every advantage that can be asked for profitable cotton manufacturing. It is on the main line of the great Southern Railway, and at the junction of the Ohio River & Charleston road, which, with the extension now under way, will become a through line from the West to the seaboard at Charleston. It has ideal climatic conditions, and is noted for its healthfulness.

Mr. Wittkowsky, who is one of the best-known business men of Charlotte, having the very best financial connections North as well as South, has undertaken the organization of this company, and already has in hand a large percentage of the proposed capital stock. Mr. S. Wittkowsky, president of the Blacksburg Land & Improvement Co., will be glad to furnish to investors or business men generally information about this proposed cotton mill or about the advantages of Blacksburg as a location for industrial enterprises or as a place of residence.

Industries for Paducah.

[Special Cor. Manufacturers' Record.]
Paducah, Ky., December 5.

Paducah, Ky., desires more manufacturing plants, and solicits correspondence with all who are contemplating a change of location or the establishment of new plants, and her advantages are such that no manufacturer who desires a new location can afford not to investigate them.

Three large railroad systems and four navigable rivers give Paducah unexcelled transportation facilities, and her river competition gives her the lowest freight rates of any city in the whole South. It is interesting to note that Paducah is the only known place where the raw materials can be assembled, iron be made and the product shipped to either foreign or domestic markets and be entirely independent of the railroads.

Paducah's leading raw materials consist of hardwoods, cotton, iron ore, coal, tobacco, potters' and fire clays.

Steam coal at from seventy-five cents to one dollar per ton insures cheap fuel.

Labor is cheap and of a good character, and factory sites are cheap and abundant. No better place in the whole South can be found for the manufacture and distribution of cotton and woolen fabrics, knit goods, farm wagons, buggies, furniture, agricultural implements, machinery of all

kinds, tobacco, pottery, art tile, sewer pipe, vitrified brick, etc.

Manufacturers looking for a location are advised by all means to investigate Paducah before making a selection.

New factories are exempted from city taxation for a period of five years.

Full information of Paducah's remarkable advantages can be obtained by addressing the Commercial and Manufacturers' Association.

AN IMPORTANT CONSOLIDATION.

Ninety Per Cent. of the Cotton-Duck Interests of America Merged Into One Company Through Baltimore Capital.

The Mt. Vernon-Woodberry Cotton Duck Co. has more than verified in the five months of its existence the predictions of its promoters, that by consolidating the various corporations of the country engaged in the manufacture of cotton duck, or as many as would join the combination, the expenses would be reduced to a minimum and the earnings the first year would be sufficient to pay a dividend on the common stock after providing for interest upon the issue of \$7,000,000 first mortgage 5 per cent. bonds and the interest upon the issue of \$6,000,000 5 per cent. income bonds. The profits of the company up to date exceed the expectations of the most sanguine, and it is not surprising, therefore, that the corporation will pay a dividend of 3 per cent. on the common stock in January. The dividend has already been earned, and a substantial surplus besides.

The Mt. Vernon-Woodberry Cotton Duck Co. is a consolidation of fourteen cotton-duck properties situated in various parts of the country. It is incorporated under the laws of Delaware. The capitalization amounts to \$23,500,000, divided as follows:

First mortgage 5 per cent. bonds....	\$8,000,000
Income 5 per cent. bonds.....	6,000,000
Common stock.....	9,500,000

The properties absorbed are as follows: Mt. Vernon Company, four mills, Nos. 1, 3 and 4 (Druid), located in Baltimore, and "Phoenix," located in Baltimore county.

Woodberry Manufacturing Co. (Wm. E. Hooper & Sons), five mills, "Woodberry," "Clipper," "Meadow," "Park" and "Mt. Washington," all located in Baltimore.

"Laurel" and "Franklinville" mills, located in Maryland, near Baltimore.

Tallassee Falls Manufacturing Co., Tallassee, Ala.

Columbia Mills Co., Columbia, S. C.

The companies that are included in the consolidated corporation manufacture about 90 per cent. of the total cotton duck of the United States. Most of the plants are located in the Southern States in close proximity to the raw material, and are directly on the lines of the railroads. The properties are managed by their former owners, who still retain a substantial interest in the new company. Half of the positions on the board of directors are filled by these gentlemen.

The president of the company is Mr. Richard Cromwell, formerly president of the Mt. Vernon Company. Mr. Cromwell is regarded as one of the most capable gentlemen engaged in the manufacture of cotton duck in the United States. He made an enviable reputation as the directing head of the Mt. Vernon Company, and has infused the same aggressive spirit into the management of the new corporation. The vice-presidents are Messrs. J. Spencer Turner, C. K. Oliver and W. Kennedy Cromwell. These gentlemen have been identified with the cotton-duck industry for years, and their assistance is no less valuable to the com-

pany than that of the executive. Mr. S. Davies Warfield, president of the Continental Trust Co., which financed the new combination and handled its securities, is chairman of the board. The directors are Messrs. Richard Cromwell, James E. Hooper, Thomas M. Turner, Henry A. Parr, David H. Carroll, S. M. Lehman, G. K. Sheridan, F. F. Carpenter, Theodore Hooper, Michael Jenkins, Andrew D. Jones, E. A. Brinekerhoff, J. Spence Turner, Charles K. Oliver and W. Kennedy Cromwell. The board is a thoroughly representative one, including, as it does, besides the cotton-duck interests, some of the best-known financiers and business men in the South.

The properties absorbed were taken over at their appraised value, based on the earning capacity of the various plants. Of especial advantage to the Mt. Vernon-Woodberry Cotton Duck Co. was the acquisition of the trade-marks. The importance of this feature of the deal may be better appreciated when it is stated that some of them have been in existence for fifty years, and have a worldwide reputation. The names of the trade-marks or brands owned are the "Mt. Vernon," "Woodberry," "Druid," "Ontario," "Arista," "Greenwoods," "Franklinville" and "Laurel." The Mt. Vernon and Woodberry brands are perhaps more widely known than the others. Heavy exports of cotton duck bearing these marks are made every year, and the two mills after which the brands are named are now engaged in filling many foreign orders. The Mt. Vernon and Woodberry Mills are the pioneers in this branch of industry in the United States. The Woodberry was started in 1837 and rebuilt in 1843. The Mt. Vernon came into existence about the same time. There are probably a hundred different weights and sizes of cotton duck. Heretofore every mill in the business had to make all of these different weights and sizes, but under the consolidation the business has been concentrated, and while one mill runs on one size or weight, the other mills turn out the other sizes and weights. This arrangement, of course, greatly cheapens the cost of production, which means so much more net profit to the company. The Mt. Vernon-Woodberry Cotton Duck Co. has not taken advantage of its practical control of the situation to increase its profits at the expense of the consumer. The same prices are charged for the same quality of goods as before the consolidation. The properties were formally transferred to the present company last July. Most of the former owners of the mills waived their privilege of accepting payment in cash and took instead 50 per cent. in cash and 50 per cent. in securities of the new company. Experts who examined the property prior to the consolidation estimated that under the economies contemplated the operating expenses could be reduced at least \$500,000 a year. Their estimates have been more than borne out during the five months of the company's existence.

It is thought that several thousand persons will be added to the population of Beaumont, Texas, with the development of the rice lands in its neighborhood during the next two years.

During the past year six manufacturing companies, with an aggregate capital of more than \$400,000, have been incorporated at Greensboro, N. C.

The exports from Pensacola, Fla., during the first week in December were valued at nearly \$400,000.

The British government has contracted for the shipment to Africa before Christmas of 7000 more mules.

MIGHTIER THAN THE SWORD.

The South's Leading Publishing House as a Means of Promoting Its Real Interests.

[Special Cor. Manufacturers' Record.]

Richmond, Va., December 4.

There are many things now in the South which would attract the attention of a visitor and cause him to wonder at the rapid strides which the country is making along all lines of commercial, political and intellectual growth.

Industrially, the visitor would notice the establishment of factories which are fast filling the needs of the country and attracting a new population, and which, with their nearness to the raw material, promise soon to erect the South into the leading manufacturing region of the United States. Along with this advance has come a great expansion in lines of railway and of coastwise and foreign steamships that the South may have a means of transportation in keeping with her new needs.

Politically, the stranger would note that the South is no longer "solid," but that the people, always distinguished for their skill in politics, freed from sectional necessities, are laboring as intelligently and earnestly as people can for the advancement of their land.

Intellectually, the record of the South is curious. The conditions of climate, etc., there are precisely the same as those in central Europe, where the intellectual life of the world has been most active, and where the great orators, soldiers, writers and artists have lived. From this resemblance it might be supposed that the South was the intellectual center of the Western World, and so it has been and so it is destined to become again.

From very early times the intellectual superiority of the South was unchallenged, and this condition lasted till the civil war. There were, even then, circumstances, to which I will refer again, that were lessening the gap by which the South was in advance of the New England States, but at the outbreak of the war, as one of the most distinguished authorities in the country, Dr. J. L. M. Curry, declared in his well-known speech in Capon, W. Va.: "It may surprise some of the audience to learn that, by the census of 1860, when the North had a population of 19,000,000 and the South had 8,000,000, the North had 205 colleges, 1407 professors and 29,044 students; the South had 262 colleges, 1488 professors and 27,055 students; the North expended for colleges, per annum, \$1,514,688 and for academies \$4,663,749, while the South expended for colleges \$1,662,419 and for academies \$4,328,127. Besides these, in nearly every State were denominational colleges, and I make bold to say that the education furnished, according to the then existing courses of study, was in all respects equal to that furnished elsewhere."

The disadvantage under which the South suffered was one that went far to destroy both the fruits and the growth of its intellectual life. This disadvantage would have gone far to destroy them even in the days when the absence of sharp competition made it possible for small concerns to live. But since that time the establishment of giant trusts, with facilities practically unbounded, has ended the day of small things and made it well-nigh impossible for feeble interests to live at all. Hence the local publishing houses which existed in the South years ago could, up to the end of the war, barely minister to the intellectual needs of the people, and after that time they became so impotent that one by one they died, and left no successor in the field as an expo-

nent of Southern thought and Southern intellectual life.

It is the recent change in this vital condition which would, most of all things, challenge the notice of a visitor to the South, and which is stirring among the people themselves the most widespread interest and satisfaction. There has at last arisen a great Southern publishing house. The extremity of the need which has called it into being has planted its roots deep in the hearts of Southern people, and the wisdom of its management is such that the house is regarded less as a money-making enterprise than as a movement calculated to spread untold advantages over the whole South.

I have been so greatly interested in the origin and development of the work of this great Southern interest, the B. F. Johnson Publishing Co., that I have informed myself carefully about it, and I am so sure of the interest of intelligent readers in such a subject that I wish to make for them a brief sketch of the work.

Its history, like that of every great enterprise, is the history of the genius of a man. Whether that genius takes the direction of molding mobs into armies and ends in the establishment of empires, or whether it takes the direction of untiring, intelligent labor to supply some great popular demand and ends in the founding of a dynasty of merchant princes, the conditions are much the same. Every great movement has owed its success to some great man, and the account of the development of the work of the Johnson Publishing Co. is little more than the record of President Johnson's early struggles and discouragements, of his tireless efforts and hopeful perseverance, and of his final and splendid success.

The B. F. Johnson Publishing Co. was established in Richmond, Va., in 1876, before the president, Mr. B. F. Johnson, had attained his majority. He rented a little room on the third floor in Goddin Hall, on the corner of Eleventh and Bank streets, at \$5 per month. This room was used also for a living room (an improvised bed being made on the boxes of books). It was in this building that the foundation was laid for what bids fair to be one of the greatest publishing houses in the United States. At first the head of the house was manager, correspondent, book-keeper, packer, janitor and everything else. In those early days he ate at a boarding-house one square meal a day, and his other meals were made out with cheese and crackers and such things as could be cheaply picked up at the grocery stores. Early and late he toiled, looking after the trade during the day and packing and shipping books and corresponding at night, frequently working until 1 and 2 o'clock in the morning. A prominent lawyer, Chastain White (long since dead), occupied an office immediately under Mr. Johnson's, and through courtesy permitted an impecunious old gentleman to sleep on the lounge in his room. This gentleman was greatly disturbed by the noise made by the embryo publisher, and every few days he would go down to the office of the real-estate agent (the late Wellington Goddin) and complain that that man kept a cooper's shop upstairs and made barrels all night long. I am reliably informed that Mr. Johnson for weeks and months at a time used to work steadily from sixteen to eighteen hours a day. But for being the fortunate possessor of an almost iron constitution and vigorous health, which he has been most careful in preserving (never having been ill in bed a week in his life), he could not possibly have stood this strain, and yet at forty-three he is vigorous and hearty, the very picture of health, and says he feels

that he is just beginning his real career as a publisher.

Mr. Johnson's success has had some interruptions, but his house has been pushing steadily to the front. In prosperous seasons it handles nearly half a million dollars' worth of books annually, but not satisfied with past success, the company is pressing forward, hoping and expecting soon to run their annual business to more than a million. Indeed the prospects seem to be very bright for their business, as there are over seven millions of children of school age in the South, and, though many are not in school, it is fair to presume that they purchase on an average at least fifty cents' worth of school books a year, which will bring the total sum expended for school books in the South to over three millions, and in conversation with Mr. Johnson he remarked: "We aim and expect to secure a very large portion of this business."

In order that the plans and purpose of the company may be fully understood, I give herewith an extract from the introduction to their catalogue:

"In undertaking to issue a line of educational publications we have definite aims and purposes in view, and deem it appropriate that we briefly outline those purposes in the beginning of this catalogue. It is generally admitted by the best and wisest teachers that serious and sometimes irreparable mistakes have been made in cultivating and forcing the mind at the expense of the body, and to the utter neglect of the heart. It will be observed upon an examination of this catalogue that, as far as possible, it has been our aim to issue a progressive line of educational works with the threefold purpose in view of cultivating the mind, the heart and the body.

"Our constant aim will be to employ the best talent the country can produce; and we shall take pleasure in examining any manuscript submitted to us. We believe that Southern teachers and writers who are thoroughly in sympathy with our people, who realize our needs and are familiar with the educational problems with which we have to deal, are, in a great many respects, best fitted to prepare educational works for the Southern youth.

Not Sectional.

"Aside from the publication of certain books especially adapted to the needs of the schools of the South, which no publisher heretofore has supplied, we shall in our educational work know no South, no North, no East, no West, but shall endeavor to occupy broad and patriotic ground, and publish books by the most progressive writers the country can produce. It is our intention to publish those books which encourage broad patriotism and loving fidelity to the foundation principles of our government and people."

The house publishes histories, readers, arithmetics, grammars, writing books (vertical and slant), spelling blanks, Southern literature, chemistry, Latin books, lives of Lee, Jackson and Washington for children, little lessons in plant life for little children, and a very large number of other books.

Johnson's readers and Lee's histories are now beginning to be known all over the United States, and are used to some extent in Northern as well as in Southern schools, but Mr. Johnson feels that their field is peculiarly the South. He argues that a large amount of the indifference on the part of parents in the South in educating their children comes from the fact that the parents are dissatisfied with the text-books that their children have been compelled to use, it being a noteworthy fact that the histories published in the North and sold in the South by Northern publishing houses are unfair, and many

of them positively false and misleading. Until this house issued their series Southern authors were never fairly represented in any series of readers, and sectional prejudice has frequently been shown also in the matter introduced into geographies, grammars and even arithmetics. In most of the school literatures published heretofore the work of Southern authors has scarcely been noticed; this Mr. Johnson has tried to remedy by the publishing of "Manly's Southern Literature," which is really a very remarkable and interesting book. It gives copious extracts from the most distinguished Southern authors, and contains a full list, with some reference to them all.

At the recent State adoption in Virginia the B. F. Johnson Publishing Co. secured a large proportion of the business, and they are now supplying most of the readers, histories, writing books, etc., used in the schools of that State. The following extract from one of the Richmond dailies in reference to the adoption of Lee's histories in Tennessee will prove interesting:

"The B. F. Johnson Company has concluded a contract with the authorities of Tennessee by which this State uses Lee's histories for a period of five years. By adopting Lee, the public schools of Tennessee will have the use of the best school history of the United States yet issued by any publishers."

In Arkansas books are adopted by school districts, cities and counties, and the B. F. Johnson Publishing Co. are securing a large proportion of the business in that State. The most noted educational institutions in the State are using their publications. I give herewith extracts from recent issues of the Arkansas papers:

"The Arkansas State University, with its powerful faculty, its thousand students and its influence for good on the public schools of the State, is one of the most potent factors in the educational system of the Southwest. It would be difficult to devise any honor that could be paid to text-books higher than that shown certain books of the B. F. Johnson Company when the committee of the university selected them for use.

"We congratulate the Johnson Company on the compliment involved in the selection of their books by the Arkansas University, and we congratulate the University on the quality of the books selected."

Southern Authors Abroad.

An important adoption of the school books of this company has just been made in Puerto Rico. A short while ago the house received a cablegram notifying them that the "Carnefix Practical Sight-Word Reading Chart and Phonic Exercise" and the "Carnefix Primer" had been adopted for use in the schools of Puerto Rico. The same message brought an order for several thousand dollars' worth of the charts and books. Subsequently the publishers received a letter from Victor S. Clark, sub-director of public instruction in Puerto Rico, in which the following statement was made:

"The adoption of 'Carnefix Chart,' B. F. Johnson Company, was made after careful comparison with all the principal charts in the market."

Thus it will be seen that a Southern author and the Southern publishing company won a great victory. The author of the "Carnefix Chart," Miss Fannie D. Carnefix, has been for many years a successful teacher in the primary schools of Roanoke, Va. In referring to this adoption and other recent successes of the company Mr. Johnson said: "I know that we have men and women in the South just as gifted and as cultured as can be found anywhere else in the world; all they

need is encouragement. I have been astonished and delighted at the large number of splendid manuscripts that have been offered us recently for publication, and we have now between forty and fifty excellent new educational books under way, besides the number already issued." At my request Mr. Johnson gave me a partial list of the authors, and he informs me that he is negotiating with twenty-five or thirty more distinguished Southern teachers and writers in regard to the preparation of text-books to meet the needs of the public and private schools, the seminaries, academies, colleges, universities, etc. Almost every State in the South is represented. The following is a partial list:

Mrs. Susan Pendleton Lee, Lexington, Va.

Dr. J. L. M. Curry, general agent of the Peabody Education Fund and chairman of the educational committee of the John F. Slater Fund.

Miss Louise Manly, South Carolina.

Miss Nannie Clements, Alabama.

Prof. Hugh S. Bird, professor of pedagogy, William and Mary College, Virginia.

Miss Lucy Davis, principal of the Model School, Williamsburg, Va.

Prof. E. McN. Carr, North Carolina.

Prof. E. P. Moses, superintendent of schools, Raleigh, N. C.

Prof. George Petrie, professor of history and Latin, Alabama Polytechnic Institute, Auburn, Ala.

Prof. John S. Bassett, Trinity College, Durham, N. C.

Mrs. M. L. Williamson, Virginia.

Miss Ida Brown, Mississippi.

Mrs. H. H. Richardson, teacher in Springfield School, Richmond, Va.

Judge D. B. Lucas, late president Supreme Court of Appeals, West Virginia.

Miss Salley Hamner, principal of Home School, Washington, D. C.

Prof. G. M. Smithdeal, president Smithdeal Business College, Richmond, Va.

Judge C. H. Simonton, United States circuit judge, South Carolina.

Prof. John Pollard, department of English, Richmond College, Richmond, Va.

Prof. H. A. White, department of history, Washington and Lee University, Virginia.

Mrs. Blanche Wyne Johnson, formerly teacher in Bellevue School, Richmond, Va.

Prof. F. L. Riley, School of History and Rhetoric, University of Mississippi.

Prof. E. C. Branson, professor of pedagogy, Georgia State Normal.

Prof. J. A. McLauchlin, Sherman, Texas, Austin College.

Dr. S. H. Stout, Dallas, Texas.

Prof. J. D. Eggleston, superintendent of schools, Asheville, N. C.

Madame Mary Jefferson Teusler, for many years teacher in Richmond High School.

Miss Julia R. Henning, teacher in the High School, Richmond, Va.

Prof. J. W. Graham, superintendent of schools, Clarksville, Tenn.

Prof. J. A. Chandler, dean of Woman's College, Richmond, Va.

Prof. J. W. Shearer, Alabama.

E. L. Wells, South Carolina.

Prof. J. T. Derry, Georgia.

E-Governor Richard B. Hubbard, Tyler, Texas.

Prof. W. P. Trent, department of English literature in the University of the South, Sewanee, Tenn.

Dr. W. H. Payne, Nashville, Tenn., president Peabody Normal and University of Nashville.

Miss Fannie D. Carnefix, teacher in primary schools, Roanoke, Va.

S. G. Hillyer, D.D., formerly professor in Mercer University, Georgia.

Prof. S. T. Pendleton, principal of Central School, Richmond, Va.

Prof. John Hart, Virginia.

Prof. Julian P. Thomas, principal High School, Richmond Va.

Mrs. E. P. Stevens, Virginia.

Dr. R. N. Sledd, Virginia.

Kate Cairns, Virginia.

R. A. Brock, secretary Southern Historical Society.

Mary Stuart Smith, Virginia.

Martha George Tillman Snead, Virginia.

Dr. William Dudley Powers, general secretary American Church Missionary Society, New York.

Prof. Chas. Baskerville, department of chemistry, University of North Carolina.

Prof. J. W. Gore, University of North Carolina.

Prof. Collier Cobb, University of North Carolina.

Prof. J. B. Henneman, University of Tennessee.

C. Alphonso Smith, University of Louisiana.

James Mercer Garnett, Baltimore, Md.

Prof. B. F. Sledd, Wake Forest College, North Carolina.

Chas. W. Dabney, president University of Tennessee.

Polk Miller, author of "Polk Miller's Happy Half-Hour," Richmond, Va.

Prof. C. M. S. Noble, professor pedagogy, University of North Carolina.

Prof. P. P. Claxton, professor pedagogy, State Normal, Greensboro, N. C.

Dr. J. B. Shearer, president Davidson College, North Carolina.

James H. Smith, Sullivan, Crichton & Smith's Business College, Atlanta, Ga.

Mrs. Mary Settle Sharpe, State Normal School, Greensboro, N. C.

Mrs. Josie Cappleman, Okalona, Miss.

Prof. S. J. Blocher, civil government, Bentonville, Ark.

Prof. J. B. McBryde, Polytechnic Institute, Blacksburg, Va.

Prof. Burr J. Ramage, University of the South, Sewanee, Tenn.

Prof. G. C. Edwards, Sewanee Grammar School, Sewanee, Tenn.

Prof. Launcelot M. Harris, College of Charleston, South Carolina.

Prof. Francis E. Shoup, Dallas, Texas.

Prof. Isaac Ball, Dallas, Texas.

Prof. Charles W. Kent, University of Virginia, Charlottesville, Va.

Prominent among the new books under way is a series of college classics, under the editorship of Prof. W. P. Trent, professor of literature in the University of the South at Sewanee, Tenn. In this work Professor Trent will be assisted by twelve or fifteen of the most distinguished literary men in the South. In discussing the subject of education Mr. Johnson remarked: "We are doing everything we can to encourage Southern authorship, to advance the cause of education, and to promote the material prosperity of our people." He said: "I have noticed with interest that a large number of the greatest artists the world has ever known sprang from Southern Europe, where the climatic conditions are exactly the same as in the Southern States. Our people are warm-hearted and imaginative; they are capable of producing literature fully equal, if not superior, to any that has ever been produced heretofore." Mr. Johnson is an optimist of the broadest type. Although a very busy man, he has found time to travel almost all over the United States, generally combining business and pleasure. Several years ago he made a tour of Europe, carrying some of his business representatives with him. Thus broadened by experience and contact with the people in different parts of the world, he is becoming better equipped every day for the great work to which he is devoting his life. In discussing the matter further with him he remarked:

"In the publishing of text-books we are aiming for the highest and best things. We do not publish a book simply because it will sell or simply because it will pay; we publish a book because we believe there is a special need for that particular book, and that the book ought not only be published, but the sale of it pushed." Although never engaged in teaching, Mr. Johnson has for many years made a close study of the needs of the schoolroom. He believes in the all-around development—the cultivation of mind, heart and body—and is publishing books with this threefold purpose in view. He is the author of a book on physical culture, which is just about to make its appearance. He will also shortly publish an advanced book on physical culture by a distinguished teacher. The company has in course of preparation Johnson's Geographies, Johnson's Physical Culture, Johnson's Physiology, Classics for Children, and books on geology, psychology, etc. In other words, their publications will speedily meet every requirement of the schoolroom. The following editorial, published in the educational number of the Religious Herald of Richmond, Va., will be read with interest:

"We are persuaded of the fact that one of the many things that people are apt to overlook is the character of the books that their children use at school. We once heard of a man whose son had been for two years in a certain boarding school, and who could not tell the name of the principal. Of course, this was an extreme case of neglect of interest in the welfare of a child, but many of us do not do much better.

"We cannot now tell the story of the establishment of the B. F. Johnson Company of Richmond, but we wish to say a word about the character of their books, and, incidentally, about the men who manage the business.

"It is a real gratification to us, as Southerners, to know that the books which are being sent out by this, the only Southern school-book house, are winning their way everywhere into the highest approval of teachers. The company has so far been most fortunate in its selection of authors, and the books which it has sent out have proved to be the ripe fruit of abundant scholarship and ample experience. The fact that the company has no old stock, no old machinery, and no old, expensive methods of business, and that it has abundant resources at its command, is a sufficient explanation of the further fact that its books are greatly cheaper than similar books made elsewhere. The two facts of high quality and low price are enough to explain the great and growing demand for these books.

"It is a real gratification to us, as lovers of children, to know that the plans on which the Johnson books are made are higher than the plans of the average publisher. One can hardly fail to be struck, on examination of many of their books, with the fact that they not only cover their main purpose, but also at every possible point convey sound and wholesome lessons of pure living and high thinking and noble doing. The existence of these books proves that it is possible to include all these things in many school books, and the wonder is that no publisher ever had the idea before."

The officers of the company are as follows: B. F. Johnson, president; E. A. Hoen, vice-president, managing partner of the lithographing house of E. A. Hoen & Co., and J. D. Crump, secretary and treasurer, of the Wingo, Ellett & Crump Shoe Co. Mr. Johnson has associated with him as directors S. W. Travers, treasurer of the Virginia-Carolina Chemical Co., and T. A. Cary, general agent

for the Northwestern Mutual Life Insurance Co.

Besides the publication of books, this house issues a large number of educational pamphlets, circulars, etc., for free distribution. Mr. Johnson remarked: "We want to educate the fathers and mothers as well as the children." And they offer to send free of charge, on application, any of their interesting pamphlets:

"A New Era in the Educational Development of the South," by Prof. T. S. Miner of Texas.

Address on "The Revival of Southern Literature," by Prof. Charles W. Kent, professor of literature at University of Virginia.

"Interesting Study of Women," by Mrs. Elizabeth Burgess Buford of Clarksville, Tenn.

"Report of the History Committee of the Grand Camp of Confederate Veterans."

Referring to these pamphlets, Mr. Johnson remarked: "We have distributed millions of copies of these pamphlets; we have literally sown the South with them, placing them in the hands of every teacher that can be reached, every school director and hundreds of thousands of parents." It is by this extensive and persistent advertising that the publishing house has made its books known in almost every corner of the earth, and they have recently, to my own knowledge, been shipping books to Africa, China, Jamaica and South America, as well as to every State in our own United States.

The present quarters of the B. F. Johnson Publishing Co. are finely located and arranged. They occupy three floors of the large double building running from 901 to 905 East Main street, with floor space of about 20,000 feet. This building is devoted exclusively to correspondence and the packing and handling of their publications. I find on looking into it that they frequently use every printing press in Richmond that can be secured, and that nine printing offices and binderies are working for them at present (part of them working day and night) to supply the demand for their publications. Besides, they are having a great deal of work done in Nashville, having shipped recently a large quantity of paper to the Southern Methodist Publishing House to print and bind up to help to supply the schools in Tennessee and other Southwestern States. They are now negotiating with the largest printing offices in Atlanta, Ga., with a view of manufacturing goods in that enterprising city and establishing there a large basis for supplies. Recently I saw an order given by this company to one paper mill for more than \$60,000 worth of paper, and they are getting from nearly a dozen paper mills the various kinds of paper required in the manufacture of a large number of publications.

A Hard Fight.

The success of the B. F. Johnson Publishing Co. has only been won after a hard fight. In talking over his past experience, Mr. Johnson remarked: "In the close competition and great difficulties we have had to meet and contend with, it has required every inch of manhood I possessed to preserve my integrity. Sometimes the temptation to do just one thing that appeared a little shady, or to publish a book which didn't come up quite to my standard, and yet one that I knew would sell well, was very great, but I thank God that I have been able through all of the bitter and trying struggles of the past to be true to the principles which I have laid down, and now I can say with pride and pleasure that our house has never placed its imprint in a book that we are ashamed of, and we never will. On the other hand,

I am determined that the standard shall be constantly raised, and that we will publish only books of the highest and best character."

Besides the books in the educational department, the Johnson Company issue through their trade department the following excellent and popular books:

Simonton's "Federal Courts." Shearer's "Bible Syllabus." White's "Origin of the Pentateuch." "History of Ninth Virginia Cavalry," Beale. "Gladstone," Curry. "Hurst's Guide and Manual." "Nicaragua; or, The War of the Filibusters," Lucas. "A Tribute in Song." "Now that You Are Married." "Now that You Have Married Her," Hammer. "The Soul's Experience," Snead. "Gunigan's Cook Book." "Pollard's Supplement to Virginia Code." "Sledd's Sermons." "Bobbie," Kate Cairns. "Uncle Isaac," Wm. Dudley Powers. They also conduct a subscription-book department, and in this department the following is a partial list of the books they issue:

"Valor, Victory and Heroism." "Apples of Gold in Pictures of Silver." "Health, Wealth and Happiness." Brock's "Life of Gen. Robert Edward Lee." "Hampton and His Cavalry in '64." "Profitable Farming in the Southern States." "The Path to Wealth." "Jefferson Davis Memorial Volume." "Our Father's House." "Christ in the Camp." Johnson's "Poetical Album." "The Beautiful Tree of Life." "Royal Road to Success." Williamson's "Life of Gen. R. E. Lee" (for the young). Williamson's "Life of Gen. T. J. Jackson" (for the young). "Story of the Confederate States."

In addition to the books already underway, they have a great many new and striking ones which will be announced shortly. Prominent among the books in the subscription department will be "Johnson's Complete History of the United States." This will be a magnificent 10-volume library history of the United States, written by ten different authors. A number of the brightest historical writers in the South have been secured to prepare volumes covering various periods of the history—one author, for instance, taking up the pre-historic period, another the period of the Discovery and Settlement, another the Revolutionary War, another from the Mexican War to the War of Secession, another History of the War Between the States, another History of the Country Since the War. This history will be written down to the first day of January, 1900, and the publishers propose to have it ready as early in the beginning of the new century as practicable. It will be, when completed, the finest library history of the United States ever published, and will be sold only by subscription.

I. S. FIELD.

Plans are in contemplation for extending the shipments by way of New Orleans of products from Pittsburgh and the Ohio valley by the Monongahela River Consolidated Coal & Coke Co.

During November the exports of grain from New Orleans showed an increase over the same month in 1898 of 2,275,845 bushels of corn and 306,437 bushels of wheat.

THE HOLIDAY BOOKS.

Output of Representative Publishing Houses.

At this season the publishing houses of the country are busy with their holiday trade. Among their publications are books for young and old, some of them having particular bearing upon the Christmas festival, others available for gifts, but sources of pleasure and profit the whole year; others bearing upon recent events in American history, and others of more substantial character. Following are facts about the latest books of a number of representative publishing houses:

Economics and Philosophy.

The Future of War, in Its Technical, Economic and Political Relations. Is War Now Impossible? By I. S. Bloch. Translated by R. C. Long. With a prefatory conversation with the author by W. T. Stead. Publishers, the Doubleday & McClure Co., New York. Price, \$2.

In reading this volume, timely in its appearance and practical in its tendency, it must be remembered first of all that it is but an abridgment of the six encyclopedic volumes to the writing of which M. Bloch has devoted eight years of study. It is practically the sixth volume of his work summarizing the result of his investigations begun from the standpoint of the political economist, but taking a wide range in technical military matters with a method which has met the approval of eminent military authorities. It must be remembered, too, that by war M. Bloch does not mean such episodes as the late Cuban campaigns, the hurried display in Porto Rico of opera-bouffe character, the perfidious conquest of Manila, the premature attempt of Great Britain to impose English ideals upon Boer sharpshooters without regard to Boer possibilities or the virtual massacres which in border forays accompany the assimilation of semi-barbarous heathen who have been unable to avail themselves of the material whereby modern civilization kills or cures. He means a conflict of opposing forces equally equipped with all the resources of invention in arms, ammunition and transportation, theoretically at least, and skilled in most approved methods of attack and defense; a conflict in which the participants will be, not mere fighting machines of long standing, but the great bulk of the bone and sinew of the nations, led by men for the most part inexperienced in actual warfare, but knowing enough to realize that they are marching to certain annihilation. Such a war, according to the contention of M. Bloch, has ceased to be a possibility by reason of the natural and normal development of the art of warfare. Hence the spectacle of an irresistible force meeting an immovable object and producing chaos will not be presented.

His reasons fall naturally into two classes, those based upon military and naval development and those found in national economics. These reasons are elaborated with a wonderful grasp of an enormous mass of material, patience in investigation and comparison and clearness in logical expression. The author notes as of vital importance in causing nations to hesitate about flinging themselves into a struggle for life and death, for which, however, they continue to prepare vigorously, the marked improvement in accuracy, rapidity and capacity of small arms, together with the consequent increased power of the arm-bearer, the greater killing force of exploding missiles, the use of smokeless powder, enabling the enemy to send death unseen

and tending to retire the bayonet from the field, to reduce the value of cavalry to the minimum and, by removing officers through the medium of invisible sharpshooters, to increase the demoralization in the ranks following slaughter terrific in its proportions.

The meaning of these advances is made clear in the description quoted by M. Bloch of the battlefield of the future: "The distance is 6000 metres from the enemy. The artillery is in position, and the command has been passed along the batteries to give fire. The enemy's artillery replies. Shells tear up the soil and burst. In a short time the crew of every gun has ascertained the distance of the enemy. Then every projectile discharged bursts in the air over the heads of the enemy, raining down hundreds of fragments and bullets on his position. Men and horses are overwhelmed by this rain of lead and iron. Guns destroy one another, batteries are mutually annihilated, ammunition cases are emptied. Success will be with those whose fire does not slacken. In the midst of this fire the battalions will advance. Now they are but 2000 metres away. Already the rifle bullets whistle round and kill, each not only finding a victim, but penetrating files, ricocheting and striking again. Volley succeeds volley, bullets in great handfuls, constant as hail and swift as lightning, deluge the field of battle. The artillery having silenced the enemy, is now free to deal with the enemy's battalions. On his infantry, however loosely it may be formed, the guns direct thick iron rain, and soon in the position of the enemy the earth is reddened with blood. The firing lines will advance one after the other, battalions will march after battalions; finally the reserves will follow. Yet with all this movement in the two armies there will be a belt 1000 paces wide separating them as by a neutral territory, swept by the fire of both sides—a belt in which no living being can stand for a moment. The ammunition will be almost exhausted. Millions of cartridges, thousands of shells will cover the soil. But the fire will continue until the empty ammunition cases are replaced with full. Melinite bombs will turn to dust farmhouses, villages and hamlets, destroying everything that might be used as cover, obstacle or refuge. The moment will approach when half the combatants will be mowed down. Dead and wounded will lie in parallel rows, separated one from the other by that belt of 1000 paces which will be swept across fire of shells which no living being can pass. The battle will continue with ferocity. But still that thousand paces unchangingly separate the foes. Who shall have gained the victory? Neither."

The horrors of such a suicidal combat with fruitless end, which even the class of men whose very living depends upon the possibility of war are beginning to realize, are not the only facts which, in M. Bloch's theory, are destined to keep great nations or great combinations, such as the triple alliance and the Franco-Russian alliance, from each other's throats. He does not stop, though, at detailing how war will be waged on land, the consideration of possible plans of campaign or discussion of the future place of the navy; nor is he satisfied to present the enormous costs of former wars as a basis in estimating the much greater expenditures of future ones. He goes behind the actual fighting, losing every day more and more of its theatric character, and dwells upon the economic effects, not only of actual hostilities, but of the drain upon the people's resources in the support of great standing armies and the accu-

mulation of immense stores of ammunition and constantly increasing armaments.

The facts deduced by him concerning the economic difficulties in time of war for Russia, Great Britain, Germany and France, and the possible effects upon people losing a large proportion of their most effective producers and at the same time compelled to the effort to intensify the country's production, are startling in their truth. For example, the statements that in one year of war under modern conditions the great powers would spend more than \$7,000,000,000 merely in feeding their soldiers, that Germany is at present dependent upon Russia for two and a-half months' supply in every year, and that England only grows enough bread to feed its people for three months in the year, indicate how suddenly would be bitterly felt the least disturbance of the existing machinery of supply and distribution by an appeal to war, "a tribunal which, by the very perfection of its own processes and the costliness of its methods, can no longer render a decision of any kind," and which may ruin the suitors while indefinitely postponing the verdict.

"The Future of War" will be studied not only by the general reader, who finds in it a remarkably terse presentation of facts about the great lever of history, but by professional military men, who will readily recognize in it confirmation of the impressions which they have derived from their own special study. It should be read by practical men who, looking to the immediate present, help to prolong the life of a school of economies now becoming extinct, who honestly believe that wealth may be created in waste of material, and that war, by eliminating a percentage of the population, acts as a safety-valve to movements which they regard as mere groundless turbulence.

The universal peace proposition of the Czar of Russia, which is generally believed to have originated in the convincing arguments of M. Bloch's work, may not have had effective response, but the influence of the work must continue until the peoples of the earth are freed from the drains upon their energies caused by preparations for a struggle which can never be.

A Dividend to Labor. A Study of Employers' Welfare Institutions. By Nicholas Paine Gilman. Publishers, Houghton, Mifflin & Co., New York and Boston. Price \$1.50.

In this day of stress and revolution in the industrial world there is much need for calm reasoning based upon facts about the relations of employes and employers. Many disagreements resulting in serious losses to both interests have originated in a lack of sympathy due to ignorance. An efficient remedy, therefore, for difficulties, or at least a contributory means to their solution, is the compilation of statements showing that particular cases of injustice on the part of the employing class or the employed are not necessarily characteristic of the whole. In this respect "A Dividend to Labor" is of practical value. It is valuable, moreover, in its possibility as an incentive to the employing class to follow the example of those individuals, firms or corporations which have advanced to a higher conception of the employers' function than is commonly held. The author does not endeavor to pose as an advocate of workingmen, but the clear, philosophic tone of his work in discussing the relative duties of the employer and employed makes the task one of friendliness and benefit to both. He has had trouble in obtaining reliable information about so-called welfare institutions main-

tained by employers for the benefit of their employes, a significant fact about which is that the liberal-minded employer stops short of developments that would require a change in the existing wage system. However, they result, he contends, in what he calls an indirect dividend to labor. Depending for their existence upon profits made in the usual way and appropriated in part by the employer for the benefit of his employes purely at his own discretion, and usually under no agreement with the employes, they form an intermediate stage between the wages system, under which the workman receives only stipulated wages, and a profit-sharing agreement, whereby he receives directly and regularly a certain share of the profits made by the establishment. After introductory pages reviewing the subject from a broad, practical standpoint, and concluding with a sketch of Robert Owen, whose work at New Lanark, the Scotch factory village, made him in the author's view "a master-type of the far-seeing and philanthropic captains of industry," Mr. Gilman sets forth details of the welfare institutions in Germany, the patronal institutions in France, Holland and Belgium, British employers' institutions and examples of American liberality to workmen in various lines. The facts thus made available by considerable personal investigation and wide correspondence are practically suggestive in connection with the concluding chapter. The author holds as an essential matter in the industrial world that both buyer and seller of labor shall realize the moral aspects of their relation. He does not believe that socialism is a workable scheme, but contends that among systems better than the unmodified wage scheme the plan of a direct or indirect dividend to labor commends itself more and more to far-sighted business sagacity as well as to enlightened philanthropy, inasmuch that in it, while the high and necessary offices of capital and skill are duly recognized, the authority of the manager properly respected, the handworker is respected as something more than a machine, and is raised to a moral partnership that is effective and ennobling. Mr. Gilman has done a good work. His book, read at this time by capital, employer and employe, and its suggestions practically applied to their relations, will undoubtedly be of immense benefit, not only to the individuals directly concerned, but to the people of the whole country.

Institutes of Moral Philosophy. By the Rev. Dr. Lyman B. Tefft. Publisher, the American Baptist Publication Society, Philadelphia.

The author sets forth that in any true system of moral science the supreme moral ruler of the universe must be the central fact; that the intuitions of a moral faculty are the primary conceptions and ultimate truths with which moral science has to do; that a real power of choice between moral alternatives must be recognized in discussions of right and wrong in conduct. He finds that the attempt to divorce moral science from sacred scripture, theology and religion has resulted in a science with no principle of unity, a philosophy without ultimate truth or final cause, and a code of morality without obligation. His work is in sharp contrast with the science and philosophy of morals which fails to recognize God. The work, which is adapted to class-room use by a system of numeration of paragraphs, is grounded upon the historic trustworthiness and the inspiration of the scriptures. The author believes that, with the revival of Bible study in higher-grade schools, there is, more than ever before, a demand for the study of moral philosophy, and such a study as shall rec-

ognize not only man's social and civic relationship, but also the full scope of his nature and destiny.

For the Young Folks.

Grant Burton, the Runaway. By W. Gordon Parker. Price \$1.25.

Camping on the St. Lawrence; or, The Trail of the Early Discoverers. By Everett T. Tomlinson. Price \$1.50.

Under Otis in the Philippines; or, The Young Officer in the Tropics. By Edward Stratemeyer. Price \$1.25.

We Four Girls. By Mary G. Darling. Price \$1.25.

Beck's Fortune. A Story of School and Seminary Life. Price \$1.50.

These five volumes, coming from Lee & Shepard of Boston, sustain their well-earned reputation as publishers of healthy fiction for the young folks. Readers of this class of literature remember with pleasure Mr. Parker's "Six Young Hunters." "Grant Burton, the Runaway," is a companion work. The six young hunters formed the Greyhound Club, into which Grant Burton was not admitted. Feeling insulted, he assaults one of the members, and then in sorrow and shame runs away from school, seeking to forget the past while hunting on his own hook. Misfortune overtakes him, however, and after many a tribulation and racy adventure he returns to his home and school a changed boy. Mr. Parker, who adds to his skill as an amateur sportsman capacity as a writer and artist, has presented in the story pleasing descriptions of scenery in varying phases appealing to levers of nature, and his boy readers will find in it not only entertainment and instruction, but will learn to appreciate self-denial and self-reliance.

Dr. Tomlinson has the happy faculty of embodying in his books for boys valuable information bearing particularly upon the early history of this country. This appears in his "Camping on the St. Lawrence," where, under the inspiration of an enthusiastic reader of Parkman, four friends spending the summer camping on the St. Lawrence beguile their camp-fire evenings by following in fancy the footsteps of Cartier and other discoverers, while their days are filled with sport and adventure, not always free from peril and anxiety. A merry and profitable summer is spent all too quickly. The fun in the book is bright and sparkling, the descriptions of scenery are beautiful, and the whole tone of the book is helpful and manly.

The pleasure of stories of adventure based upon camping-out experiences in this country is now enjoyed alongside of fiction based upon the more serious episodes of the war against Spain. At the outbreak of that struggle Edward Stratemeyer began what is known as the Old Glory series. The first three volumes of this series dealt principally with the Cuban struggle, while "Under Otis in the Philippines" carries a former Cuban volunteer to Manila as a second lieutenant in the army. The voyage to Manila by way of the Strait of Gibraltar and the Suez canal is not only full of information, but gives opportunity for an adventure at Malta. In the Philippines Ben Russell, the modest rebel hero, not only sees perilous service against the Filipinos, but is led through divers adventures in seeking to run to earth a defaulting bank cashier from his native town who has sought a new life at Manila. The story closes with the fall of Malolos, but another of the same character is promised.

For some incomprehensible reason first-class books for girls are harder to find than those of a high grade for boys. Messrs. Lee & Shepard, however, are fortunate in securing such literature, and "Beck's Fortune" is an excellent speci-

men of it. This is the first book by Adele E. Thompson, who is well known as a writer of short stories. Beck, the heroine, is an orphan girl, bright and impulsive, self-willed and embittered by her hard life. Dependent upon the niggard bounty of her miserly grandfather on a lonely farm, she inherits at his death his secret hoard. Imagining this to be a vast fortune, she makes ludicrous and mortifying attempts at being a fine bird. Through the wise training of her guardian's family she discovers that something more than fine feathers is necessary, and is placed on the road to noble, cultured womanhood. The story is one of the developments of a girl's possibilities through life at a typical seminary. This school life is portrayed with skill, the conversations are piquant and natural and pervaded by a sparkling humor, relieving the more serious side of the book, which teaches throughout sterling good sense, which will be appreciated by all mothers looking for good reading for their daughters.

Mary G. Darling is better known as a writer of girls' books. Her "We Four Girls" is a bright, healthy story of a summer vacation in the country, where the girls are sent for study and recreation. The story has plenty of natural incidents. A mild romance, of which their teacher is the principal character, gives interest to the tale. Under gentle guidance the better qualities of character are built up. Studies are pursued without abridgment of pleasure, and the young girls end their summer convinced that it is the most delightful they have ever experienced.

Little Beasts of Field and Wood. By William Everett Cram. Publishers, Small, Maynard & Co., Boston. Price \$1.25.

Practically the observations upon which this volume is based were made in New Hampshire, but they apply in a general way to regions in Southern New England and New York, and perhaps to other portions of the country. When we read of the red, black and gray foxes, weasels, minks, otters, muskrats, gray squirrels and flying squirrels we see that even readers in the South will recognize many animal traits with which they are individually familiar. An introductory chapter treating of the habits of little beasts generally and the best methods of finding and studying them enlists at once the interest of the reader, even though he may never have before cared the least about natural history. The style which makes the introductory chapter entertaining pervades the whole volume.

Mother Goose's Nursery Rhymes. With 250 pictures by F. Opper. Publisher, J. B. Lippincott Co., Philadelphia and London. Price \$1.75.

Mother Goose's melodies are a perennial source of joy, not only to succeeding generations of children, but also to men and women traveling away from youth, but approaching the happy period known as second childhood. The volume of Opper has the attractive advantage of combining the well-known classic rhymes and jingles coming down from the ages with illustrations most suggestively modern, making the collection a unique one, and one appealing to a wide constituency.

Dickey Downey. The Autobiography of a Bird. By Virginia Sharp Patterson. With an introduction by John F. Lacey, member of Congress. Drawings by Elizabeth M. Hallowell. Publisher, A. J. Rowland, Philadelphia.

This is one of those clever volumes in which the impressions of the lower forms of life in their relations to humanity are presented in most attractive manner. It cannot fail to entertain the young folks,

and even many children of older growth. Beside, it has a distinctive, practical value in training to gentleness and kindness toward the weaker animals and birds. Mr. Lacey believes that an earnest appeal to the natural gentleness of women must be made to encourage them in the defense of birds, and that this work of Mrs. Patterson's will save many a bird from becoming a prey to that form of vanity which transforms plumage into decoration of the headgear of women.

The Book of Knight and Barbara. Being a series of stories told to children by David Starr Jordan. Corrected and illustrated by the children. Publishers, D. Appleton & Co., New York.

This is a book which ought to be and will be most satisfactory to young children and grown-up ones. The author has a pleasant habit of telling stories to his children, stories original or imitative, or travesties upon the work of other story-tellers. He was persuaded to repeat them to other children, and from the stenographic reports of them the main text of the book was compiled while he was helplessly removed from the scene as a member of the Bering Sea commission. Many children in the meantime read the stories, criticised them and drew illustrations of them. The result is a delightful volume, making absolutely unnecessary the author's modest apology that he never meant to do it.

Child Verse: Poems Grave and Gay. By John B. Tabb. Publishers, Small, Maynard & Co., Boston. Price \$1.

Father Tabb, one of the sweetest lyricists of the country, has gathered in this volume verses which have appeared from time to time in periodical literature. Such of them as "Hare Bells," "The Bobolink," "The Tax Gatherer," "Jack O'Lantern," "The Fire-Fly," appeal perhaps more strongly to children than others, but every one of the collection finds response in the child instinct which never disappears from human beings unless they be mental dyspeptics. They are full of quaint ideas, such as when the woodpecker "finds a rotten tree he makes the timber sound," or the idea that death can bring to the honey bee "no second sting," or the lament of the cloud because of the death of "her rain-beau," or the view which the toad takes of "leap" year.

Fiction.

The Wind Flower: A Novel. By Clara Atwater Mason. Publisher, A. J. Rowland, Philadelphia.

This is a story turning upon the evolution of a rector of a New England parish inclined to celibacy and wrapped up in ideals of a universality of formalism and ritual in religious expression, into a worker for his fellow-men on the social-settlement plan. Accompanying this evolution is the change from other ideals growing out of relations with a Quaker family, whose daughters are brought into the influence of the Church. For one of the daughters the young priest conceives a love, based upon certain qualities which he imagines she possesses. Happily for him, the young woman, after her engagement with him, finds her ideal in a ne'er do well. This is a great blow to the young priest, who goes to England for a year or more and emerges from the darkness of unbelief into which his formalism had plunged him into faith and a love for his original fiancee's sister, who, by the way, had developed quite an affection for him before the earlier engagement had ended. To disabuse the reader's mind of a possible impression that the book has a special purpose, the author announces that it was written in the winter of 1897, before the outbreak of the present ritual

istic controversy in the Church of England.

Hilltop Farm. By Sophie Bronson Tittington. Publisher, the American Baptist Publication Society.

This is a religious novel. It takes its name from the home in the country in which a city family, crippled by the waning eyesight of its head, find refuge, and is concerned principally with the growth in religious life of the members of the family under the guidance of a mother's piety. Two sisters, Katie and Margaret, furnish opportunities for contrast, the one developing her Christianity naturally, the other attempting to be a Christian by method until she finds in defeat the real inspiration. Mahala, the servant in the family, supplies a grim sort of humor to the story, while Bobbity, the baby brother, makes interesting remarks, and the love idea is developed in the case of the neighborhood preacher.

The Brushwood Boy. By Rudyard Kipling. Illustrated by Orson Lowell. Publisher, Doubleday & McClure Co., New York. Price \$1.50.

Rudyard Kipling has produced much. Of all his shorter writings, nothing appeals more strongly to the reader or better typifies the Kipling genius than "The Brushwood Boy." It is different from most of his writings, fantastic in its conception and permeated with a mystic love idea entirely original. The thread of the story is fantastically elusive, but at the same time suggestive, but the illustrations show that the artist has been able in most sympathetic manner to come under the spell of the illusive suggestiveness which fascinates the reader.

The Perils of Josephine. By Lord Ernest Hamilton. Publishers, Herbert S. Stone & Co., Chicago and New York.

The author of the "Outlaws of the Marches," which had the drawback of too much dialect, has presented in this volume an exciting plot turning upon the substitution of two children for each other by their own father to insure the succession to a vast estate to the younger son and the favorite. It is a nineteenth-century plot, just turning upon actual crime, and full of interesting situations in which the rather impossible heroine figures as she moves toward her long-withheld rights.

Miscellaneous.

Pike and Cutlass: Hero Tales of Our Navy. By George Gibbs. J. B. Lippincott Co., Philadelphia.

Here we have presented in attractive style, with illustrations by the author, entertaining side-lights upon the career of the United States navy—incidents in the career of John Paul Jones, of Decatur, of Charles Stewart on the Constitution, Captain Hull, Captain Jacob Jones on the Wasp, David Porter and the Essex, Lieutenant Cushing and the Albemarle, of Farragut in Mobile bay. Mr. Gibbs' study of these characters gives interesting views of life in the old navy. To them he has added chapters on the changes which have taken place, on life at the Naval Academy, on the American seamen and on "Our Nation's New Heroes." In this last chapter are given some facts about Captains Taylor, Evans, Sigsbee, Lieutenant Bernadou, Lieutenant Bagley, Captain Cook, Captain Clark, Commander Davis, Captain Philip, Victor Blue, George Dewey. While nearly two pages in this list of heroes are devoted to Admiral Sampson, whose heroism the American people have signally failed to detect, there is no mention in the account of the victory of Santiago of Admiral Schley, with the exception of the sentence, "Captain Cook, Admiral Schley's chief of staff on the

Brooklyn." The American people have also failed to discover any special act of heroism in Captain Sigsbee. The state of mind which classes certain of these doughty warriors as heroes is easily understood, though, when we find under the heading "The Real Brains of the War" the following paragraph headed "Captain A. S. Crowninshield, the chief of the bureau of navigation, bore the brunt of the brain-work for the men and ships at the front." In connection with Captain Crowninshield, however, the author makes a statement which ought to solve a great many perplexed questions before the country. He writes: "Ask any captain of the fleet of the victorious battleships and cruisers of Santiago and Cavite who contributed most to the victory of Santiago and Manila and they will say 'Captain Crowninshield.'" There it is; the explanation of victories which the American people, under a most singular delusion, have been crediting to other persons! That they at the same time have failed to appreciate the modesty and generosity displayed toward the distinguished naval officers by the bureau over which Captain Crowninshield presided is a matter of record now become lamentable. But the truth must out. The brains of the war have at least been revealed, and Captain Crowninshield ought to be more grateful to Mr. Gibbs than Mr. Gibbs is to Captain Crowninshield for having had access to many valuable works in the archives of the library of the Navy Department at Washington. Had it not been for the latter the former would have continued to blush unseen and waste his fragrance on the desert air, but now he will flourish as the green bay tree and blossom in all the beauty of the rose of Sharon. But it is a pity that a first-class book in other respects should be spoiled by such an excursus.

Mammy's Reminiscences and Other Sketches. By Martha Gielow of Alabama. Publishers, A. S. Barnes & Co., New York. Price \$1.

Mrs. Gielow has won deserved fame as a delineator in readings of ante-bellum Southern life, and as an impersonator of negro character. She has spoken and read from a mind full of knowledge of the old regime in the South and a heart full of affection for many of its phases. Her readings have been from her own writings, and having now collected much new material for her repertory, she has at last been led to grant the request for a publication of some of the material which she has used from the rostrum, in the hope that the little character sketches and jingles may help to make recognizable the old-time negroes who have been so exaggerated and caricatured by the minstrel performers and other impersonators. The material of the sketches has been drawn from actual happenings related to the author by her old black mammy, to whom the book is affectionately dedicated. Mrs. Gielow has very successfully caught the quaint humor of the happy, simple natures of the plantation, and has made an important contribution to a study of the negro dialect, which has almost become a thing of the past.

For Love's Sweet Sake. Selected poems of love in all moods. Edited by G. Herbert Westley. Publishers, Lee & Shepard, Boston, Mass. Price \$1.50.

This volume, which is a fine specimen of the printer's and binder's art, with rich cover, fine paper, full-page illustrations, is not the result of gleanings from a scrapbook collection of fugitive poems, but as a companion to the publishers' previous collection, "Because I Love You," care has been taken not to duplicate any selections therein. Mr. Westley has a poetic

spirit himself, and has shown a rare gift of selection and arrangement in editing the volume. The poems are presented in four editions, entitled, respectively, "Love's Morning," "Love's Noontide," "Love's Evening" and "Love's Night." And the contents are fully chosen for each section and are suited to all moods of love and friendship.

The Celestial Lamp and Other Sermons. By the Rev. Robert Stuart McArthur. Publishers, American Baptist Publication Society, Philadelphia.

In this volume are collected twenty sermons which, with one exception, were delivered in the course of the author's successful pastorate in the Cavalry Baptist Church, New York city. The series of sermons give special prominence to various characteristics of the word of God, and the whole collection is a valuable contribution to the contention against the current disregard for authority which ultimately finds its origin in a denial of the authoritative position of the scriptures as a vital element in individual action and the conduct of human affairs.

Notes.

One of the most attractive collections of Christmas mementoes of this season is the issue of cards and calendars by the Taber-Prang Art Co. of Springfield, Mass. Some persons are satisfied with a mere card bearing directly upon Christmas. But among the collection from Springfield, which, by the way, in design and execution is the work of American artists and American artisans, are handsomely lithographed remembrances in the form of calendars for 1900, which carry the pleasures of the season through the whole year. Among them are "Fair or Fowl," in which the well-known instincts of the barnyard as to weather are cleverly adapted to the seasons; "Sweet Mistress Kate," "With Christ all the Year," "Bright Smiles of Nature's Face," "The Bunny Calendar," "Maids of Olden Time," "Cupid's Year," "The Calendar of Centuries," presenting scenes illustrating American progress from the days of Columbus to the days of Dewey; "A Church Calendar," "Greetings of the Season," "The Stately Lilies" and "Our Navy," with views of the Constitution and Guerriere, of Decatur and the Dey of Algiers, the Monitor and the Merrimack and the battle of Manila bay. These are a few of the many designs issued by the Taber-Prang Art Co.

A New Offer on Burned-Out Incandescent Lamps.

The Lynn Incandescent Lamp Co. of Lynn, Mass., have for several years made two offers for burned-out lamps, and now add a new one.

Their former offers were one for cash, and the other, where either new or renewed lamps were ordered equal in number to burned-out lamps sent them.

Finding many firms, lighting stations, etc., having an accumulation of burned-out lamps on hand, greater in number than they wanted equal number of lamps in return for, and wishing to obtain more for them than the cash price usually paid, the company now make a new offer meeting this demand.

The usual price paid for burned-out lamps is one cent each or less, but this new offer gives them a value of two cents each at shipping point.

Their new offer is to give a credit of two cents each at shipping point if their value is taken in either new or renewed lamps.

We will add that this company claims to be the pioneers in the renewing business, and the ones who first gave burned-out lamps a value.

HAS HANDLED MILLIONS.

Operations of the Mercantile Trust & Deposit Co.

The Mercantile Trust & Deposit Co. of Baltimore is everywhere recognized as one of the greatest financial institutions of the United States. The magnitude of its operations, involving the successful conduct of negotiations for financial projects of all kinds, attests the public confidence which the absolute soundness of its management inspires. Its facilities for bringing together powerful combinations of capital for the consummation of deals involving many millions of dollars are unsurpassed. Its capital stock of \$2,000,000, with a surplus of nearly \$3,000,000 and deposits of nearly \$7,000,000, shows the vastness of its resources.

It has been a tremendous factor in promoting the development of the Southern States, by reason of the large amount of capital which it has brought into them through its operations, and has been the medium through which municipal improvements have been possible in many Southern cities.

It has handled since its organization not less than \$250,000,000 in securities, and a review of the financial deals which it has carried out would make an enormous showing. For all financial enterprises the value of such an organization is invaluable. With ample powers and the strongest legal safeguards surrounding the exercise of them the work that can be accomplished is largely of its own creation, and makes possible the attainment of gigantic results.

The directory of the company is made up of some of the wealthiest and most influential men of Baltimore. Among them are W. W. Spence, Louis McLane, C. Morton Stewart, John A. Hambleton, E. Austin Jenkins, Christian Devries, Chas. D. Fisher, William H. Whitridge, Thos. Deford, John E. Hurst, Stewart Brown, William H. Blackford, Alexander Shaw, Charles F. Mayer, John W. Garrett, William T. Dixon and John Gill of R. The officers are: John Gill of R., president; W. W. Spence, vice-president; C. R. Spence, second vice-president; A. H. S. Post, third vice-president; John McHenry, treasurer; Charles E. McLane, assistant secretary and treasurer; Louis McLane, chairman executive committee.

THE PENNSYLVANIA RAILROAD.

Its Part in Baltimore's Southern Trade.

One of the chief contributors to the commerce of Baltimore and to that city's importance as a Southern emporium is the Pennsylvania Railroad. It brings Baltimore into direct touch with the flourishing section of Southern Pennsylvania, with the West, and by connections at Washington with the vast territory traversed by the Atlantic Coast Line, the Chesapeake & Ohio, the Seaboard Air Line, the Southern Railway, the Plant system and the Richmond, Fredericksburg & Potomac Railroad, and gives quick communication with Philadelphia, New York and New England. Its business has so grown in Baltimore that it is handled at five stations, one almost within a stone's throw of the business center of the city, and one, the Union Station, where all its lines meet, while others are found in different points on a long sweep from the southwestern to the northeastern portion of the city.

A large area is occupied by the Canton terminals and elevators Nos. 1 and 3 at the eastern edge of the city, while five large piers are necessary for the handling of outward-bound or inward-bound freight. Elevator No. 1 has a capacity

of 500,000 bushels of grain, and can unload in ten hours 125 cars, in the meanwhile loading two steamers in less time. Four steamers can be loaded at one time at elevator No. 3, which has a storage capacity of 1,000,000 bushels. Elevator No. 2, with a capacity of 300,000 bushels, is at Calvert Station, where freight to go North by the Northern Central Railway and South by the Baltimore & Potomac branch is handled with expedition in half a dozen large freight-houses and extensive freight-yards with ample track facilities. Three other freight warehouses are at President Street Station, the old terminus of the Philadelphia, Wilmington & Baltimore Railroad; others are at Jackson's and O'Donnell's wharves, while at Bolton are coal-yards and the means of handling vegetables and fruit. Live-stock is handled at Claremont stock-yards, the cold-storage business by the Union Terminal Cold Storage Co., and flour at the large terminal warehouse yard near Calvert Station.

A large part of this business comes from the South, or is sent in that direction, and the credit for much of the work which has given Baltimore and the South a share of the advantages of a railroad regarded as the model in the country in all its workings is due to Mr. George C. Wilkins, the general agent of the company in Baltimore.

ATLANTIC TRANSPORT LINE.

Healthy Growth of a Baltimore Enterprise.

Few, if any, Baltimore business enterprises have a more interesting history of growth and progress than the Atlantic Transport Line. From its modest beginning in 1881, under the unattractive name of the Rohrer Scow Co., with a capital of less than \$50,000, it has come, through various stages of success, to be a first-class ocean steamship company with a paid-up capital of \$3,000,000 and absolutely free from bonded indebtedness or mortgage of any sort. The first intention of the incorporators was to conduct only a lighterage business, but in 1883 a storage business was added, the name of the company changed to the Baltimore Storage & Lighterage Co. and the capital increased to \$200,000. The steamship business was taken up gradually, and the capital stock increased from time to time as the growth of the business necessitated, and in 1886 the first steamer built expressly for the Atlantic Transport Line was completed and put into service.

As the company became better known a line of steamers was established between Philadelphia and London, and in 1891 the passenger service from New York was begun. It is now impossible to meet the demands for summer travel, and the large pier at Canton is so crowded with bonded imports that the general storage business has been to a considerable extent left to other companies. A large addition has recently been built to the pier, and the Pennsylvania Railroad tracks, which run onto it, bring the steamship line into close intercourse with all parts of the country, while connections with the South and between Southern points and all parts of Europe are maintained. The Atlantic Transport Line also controls and manages the National Line from New York to London, and is the agent at Philadelphia for the Hamburg-American Line to Hamburg. At Baltimore it has the agency for the Lord Line to Belfast and Dublin, the Empire Line to Leith and the Bristol Channel Line to Bristol. The large business of the company makes it necessary for it to charter a great many steamers from time to time, both for the single voyage and on time charter. The officers of the company are Messrs. Bernard N. Baker, president; James S. Whiteley, vice-president; Waldo Newcomer, secretary; Charles G. Heim, treasurer, and P. A. S. Franklin of New York, general manager.

IN FOREIGN TRADE.

Business of the Firm of Patterson, Ramsay & Co.

Baltimore ship brokers and agents are every year adding a heavy volume of trade to the already immense business done here with foreign ports. One of the foremost firms representing a number of leading steamship lines is Patterson, Ramsay & Co. Beginning as agents of the Johnston Line in 1880 for the development of the Liverpool trade, the firm subsequently took up the loading of steamers for other ports, and acquired the agency of the Donaldson Line between Baltimore and Glasgow, working up a large and valuable trade. This line, with weekly sailings, has a fleet of five vessels thoroughly equipped for the carrying of live-stock and general cargo, several of the steamers being fitted up with refrigerators for the conveyance of dressed meats. The steamers of this line are each of about 5000 tons capacity, and are safe, speedy carriers, well adapted for the carrying of cargoes of any sort to any port of Scotland or the United Kingdom. The terminal facilities at Glasgow are excellent.

The trade to Antwerp has been developed, and the company has four steamers a month running to that port, besides managing the Puritan Line to the same port, which is a valuable adjunct to the foreign commerce of Baltimore. The steamers running between Baltimore and Antwerp have the privilege of stopping at Deptford, a suburb of London, when they have cargo for that port. They are all modern, up-to-date vessels, thoroughly fitted for the general cargo of any sort which can be given quick transshipment from Antwerp to Continental Europe. They sail regularly every ten days, and are liberally patronized from all parts of the country.

The Havre trade has been given close attention, and steamships are sailing regularly between Baltimore and that port. Whenever necessary sailings are also made to Newcastle, and in the tobacco season to Bordeaux. This is the Blue Cross Line, and is made up of chartered steamers especially selected to meet all requirements of shippers. This is a popular line with local shippers, and nearly all goods from Baltimore to France go by it, for transshipment from Havre. In addition to the sailings of the Blue Cross Line to Newcastle, the firm also dispatches the Wilson Line steamers to that port whenever necessary, and the indications are for an increased trade and more frequent sailings.

Messrs. Patterson, Ramsay & Co. also represent the Lampert & Holt Line and the Sloman Line for Rio de Janeiro, Peru, and other South American ports. The Johnston Line, from Baltimore to Liverpool, has regular sailings every Thursday, with additional sailings in the winter when business is at its best. The steamers of this line are the very best type of freight carriers, and are well known to all exporters. They are chiefly for the dressed-meat and live-cattle trade, having unexcelled facilities for the carrying of live-stock.

Besides managing the lines named, Messrs. Patterson, Ramsay & Co. charter steamers for grain cargoes to European ports and coal-carrying steamships to Tampico and Vera Cruz, Mexico.

A Good Work.

The Southern Railway, while working in its own interests, is doing no less for the whole section through which it runs by the publication and extensive circulation of its "Southern Field." The "Canadian edition" of the November issue, just

to hand, contains articles in both English and French, setting forth the agricultural, industrial and climatic advantages of the South Atlantic States. No more desirable immigrants could be found than the intelligent, hardy and law-abiding inhabitants of English Canada, while the thrifty and home-loving French of Quebec are undoubtedly to be preferred to any but the very best European immigrants.

Large numbers of French-Canadians have been pouring into New England during several years past, and it is to be hoped that the efforts of the Southern Railway and other concerns interested in immigration will result in bringing many of them South. Though the yeomanry of the Northern States and English-Canadians may be more valuable factors in the upbuilding of this section, the "habitants" of Quebec are highly desirable as farmers, grape-growers, laborers and expert factory operatives, and will make good citizens.—Macon Telegraph.

READY-MIXED PAINT.

A Specialty of Messrs. C. H. Winkelmann & Co.

The firm of C. H. Winkelmann & Co., 15 W. Pratt street, is one of the largest and best-known paint houses in Baltimore and in the South. It has been established at its present location eight years, and the rapid growth of its business evidences the high character of its methods and the excellence of the goods it handles. Besides a large local patronage, many orders are filled to various parts of the country, and in the Southern States particularly it has an extensive trade and connections.

A specialty of this company is its Puritan ready-mixed paint, which has become one of the most popular articles of its kind on the market. It is an absolutely pure paint, in which only pure linseed oil and turpentine and the best drying Japan are used, while only pure and durable pigments are used for tinting purposes. It is claimed for Puritan paint that it has great strength of body, superior brilliancy of shade; that it will not peel or blister; that it is the most durable and economical. It is put up in quantities of from one pint to one barrel, and is sold in thirty different shades. The firm carries a full line of oils, lead, glass, varnishes, brushes and colors—all first-class goods and at low prices.

Alabama Coal and Coke.

In his report to the Alabama Scientific and Industrial Society on the iron and coal operations of the year in this State Dr. Eugene A. Smith presents some interesting figures. During the first quarter of the year the production of coal amounted to 1,761,271 tons, and of coke 358,320; for the second quarter, coal, 1,833,819 tons, and coke, 449,412 tons; third quarter, coal, 1,843,137 tons, and coke, 459,468 tons. The output of coal for nine months ending September 30 is thus seen to have been 5,438,227 tons. Figuring that the output during the last quarter will be as heavy as it was in the third quarter, the total for the year will be 7,281,364 tons. Last year's output was 6,527,766 tons, so that an increase of something like 750,000 tons is promised for this year. This will be by far the largest production in the State's history. Dr. Smith makes the following report on the State's iron production:

Pig-iron: First quarter, 242,590 tons; second quarter, 268,443; third quarter, 262,761; total, 773,794 tons.

Iron ore: First quarter, 546,310 tons; second quarter, 620,618; third quarter, 623,845; total for three quarters, 1,790,773 tons.

THE SOUTHERN RAILWAY.

Something of a Great System's Influence Upon and Importance to the South.

Work of the Company in the Building Up of Agricultural and Industrial Interests in the Immense Section Tributary to It.

By M. V. Richards of Washington, D. C.

The most important of the railway system of the South today is the Southern Railway. It occupies this place whether one considers its extent, the country it reaches, the magnitude of its operations, its inception and organization, or its policies and its influence upon the development of the South.

The Policy of Progress.

It might be said that the key to its great growth has been due to a policy that might be designated as conservative progress. It has followed that conservative policy which aims to earn a fair return for the capital invested by safe, judicious and intelligent management. It is a policy that looks to the future, and which knows that the surest and best returns are to be made by that growth of the business which comes from the steady and permanent development of the Southern territory. It is a policy, too, that gives to the road and its territory the best and most economical facilities for handling both passenger and freight traffic in the way of the most substantial roadbeds and tracks, the lightest possible grades, fine equipment, good yards, depots and warehouses and adequate docks at seaboard points.

Extent of the System.

The Southern Railway system, including the Alabama Great Southern and the Northern Alabama, has a mileage exceeding 6700 miles. Its lines penetrate Alabama, Georgia, Kentucky, Mississippi, North and South Carolina, Tennessee and Virginia. From the North and East it furnishes the best routes to nearly all Southern cities and territories. It reaches nearly every important city, industrial, agricultural, mineral and timber section of the South. It traverses the great Piedmont region, with its wealth of agricultural, mineral and timber resources and its great industrial centers. It crosses the mountains of North Carolina, reaching into their great timber districts, going through their picturesque and delightful scenery and to their most famous resorts; it passes through the beautiful and fertile East Tennessee country, down through the valley of the Tennessee river and on to the flourishing commercial city of Memphis, on the Mississippi, with branches into the great coal regions of Tennessee and Kentucky, and from Chattanooga through Northeast Georgia to Atlanta. It runs from the Ohio river through the famous Kentucky "bluegrass" region. From Chattanooga the Alabama Great Southern goes straight down through Alabama to Meridian, Miss. It enters all the coal and iron districts of Alabama, and finds its way through the splendid farming and manufacturing districts of that State to the fine Gulf city of Mobile. It passes through Central Mississippi and the rich Yazoo valley to Greenville, on the great river. It penetrates the greater part of Georgia, with lines to the timber districts, the uplands, the important port of Brunswick, Columbus on the Chattahoochee, with its great water-powers, and the peach country at Fort Valley. It goes through the coast country of South Carolina to beautiful and growing Charleston, down the splendid "Ridge Country" of

that State to Aiken, S. C., and Augusta, Ga., and a new line is now being constructed leading directly south from Columbia, S. C., which will be completed about December 1, 1899, and will afford an entrance into the important city of Savannah, Ga., and will be the leading route between the East and Florida. It runs through to Tidewater Virginia, Norfolk, Richmond, West Point, and has a road into the Shenandoah valley. On its various main and branch lines are Washington, D. C.; Charlottesville, Lynchburg, Danville, West Point, Richmond and Norfolk, Va.; Greensboro, Raleigh, Goldsboro, Durham, Winston-Salem, Mount Airy, Salisbury, High Point, Asheboro, Asheville, Statesville, Hendersonville, Mocksville, Wilkesboro, Charlotte and Hot Springs, N. C.; Columbia, Charleston, Anderson, Abbeville, Greenville, Spartanburg, Greenwood and Camden, S. C.; Atlanta, Augusta, Athens, Columbus, Macon, Gainesville, Rome, Dalton, Griffin, Elberton, Toccoa and Brunswick, Ga.; Anniston, Bessemer, Birmingham, Gadsden, Selma, Demopolis, Huntsville, Decatur, Florence, Sheffield, Tuscumbia and Mobile, Ala.; Columbus, West Point, Winona, Corinth, Itta Bena, Greenville and Meridian, Miss.; Memphis, Chattanooga, Knoxville, Maryville, Morristown, Johnson City, Bristol, Harriman, Embreeville and Jellico, Tenn., and Louisville, Lexington, Lawrenceburg and Middlesborough, Ky.

Baltimore a Terminal.

From Baltimore the Baltimore, Chesapeake & Richmond Steamboat Co.'s steamers run to West Point and Norfolk, where they connect with the lines of the Southern Railway, and this practically makes Baltimore a Southern Railway terminal. From Boston and Providence and New York and Philadelphia service via steamers via Piedmont Air Line and Asheville Line, and all rail from the North and East via Richmond and Danville, is given. There is a through train service from New York and Northern cities to Atlanta, New Orleans, Memphis and Florida points.

A Reciprocal Policy.

From the above description of the extent, territory, organization, work and policy of the Southern Railway, the importance and influence of the great system in building up the Southern States and in the distribution of traffic to and from them will readily be seen. The road's work in the development of the country is such as must follow the provision of the amplest traffic facilities, and the best and most prompt service, both passenger and freight, for such service creates, sustains and encourages development along all lines of profitable endeavor. It works also in another way for the building up of the vast territory from which it draws its business. Its policy is that the successful railroad must not only handle, but must also create traffic. The only sure and permanent way of creating traffic is to aid in the development, on natural lines, of those pursuits and industries which in themselves afford traffic, or aid the various communities where traffic is to be had.

Industrial Development.

To do this valuable work the Southern Railway maintains a department whose business is to look after all industrial and agricultural matters. This department is a comparatively recent addition to the regular financial, operating and traffic departments of railroad work. The Southern's Land and Industrial Department is a great bureau of information and publicity for the South, and especially for that portion directly tributary to the Southern Railway. It works with and through the commercial bodies, property-owners and progressive business men at all points on the system in establishing new industrial institutions, strengthening old ones, settling up the country, and in a hundred ways does what well-directed energy can do in helping the growth of the South. Like all other departments of the road, this is abreast of the times, a student of conditions, opportunities and progress, soils, minerals, timber, everything which will aid in carrying out its purpose and giving the communities along the Southern Railway new people, new capital and new establishments, and the road additional business, either present or prospective. Its aid is given to the home-seeker, the manufacturer and the investor in investigating the Southern country.

Manufacturing Enterprises.

The manufacturing interests of the sections reached by the Southern Railway are varied, large and developing most rapidly. Along the lines of the railway there were invested in new establishments and in the enlargement of old ones during the past year several million dollars. These new plants and new additions will employ thousands of skilled hands, spend hundreds of thousands of dollars annually for labor, utilize an immense amount of the natural products of the South, have annual products reaching into the millions in value, and care for a large export as well as home trade. They include iron and steel furnaces and mills, ore mills, machinery plants, cotton, knitting and woolen mills, paper and pulp mills, glass factories, furniture and other woodworking establishments, tanneries, shoe factories, canning factories, tobacco factories and scores of other kinds of plants. They have been located because of the manifest advantages for their success in cost of production, excellent home markets and facilities for reaching other markets, both domestic and foreign. The capital invested has been both local and outside, and none of it has been located because of undue promotion or bonuses. A few old plants have been removed from other sections of the country to more advantageous locations on the Southern, but for the most part the establishments have been new factories, with the latest improved machinery.

The advantages for manufacturing in a large number of lines are greater along the Southern Railway than in any other section of the country, and there is room for hundreds of new establishments, representing every line of industry. The advantages include cheap raw material, whether cotton, wool, hardwood and other timbers, iron and steel, stone, kaolin and clays, mica, fruits and vegetables for canneries, leaf tobacco, etc.; the cheapest power, whether steam, water, or electric generated by water; cheap, contented, stable, efficient labor; fine sites at low cost, cheap building materials, local encouragement, good nearby markets and cheap and quick transportation facilities. The cost of living for workmen is very low. Hundreds of places furnish the most attractive residence advantages for owners and managers, as well as employees. The people are awake to the benefit of manufacturing institutions and give them encouragement. In many localities taxes

will be remitted for a term of years, while in all they are very small. The Southern people are strong in local pride and will patronize home institutions. There are a very large number of places where there is room for various plants looking to local and nearby markets, plants making articles which are now largely imported into the South from other sections, but which could be more economically produced in many regions along the Southern Railway. It would pay Northern manufacturers, and especially owners of small plants, to investigate in these lines, many of which can be pointed out by the Land and Industrial Department of the Southern Railway. In quite a number of places local capital now stands ready to unite with outside capital in new enterprises for which there are openings.

Mineral Districts.

The Southern Railway penetrates the great mineral districts of the South. In Alabama, Tennessee, Kentucky, Virginia and Northwestern Georgia are coal districts producing fine qualities of bituminous coal, which is mined cheaply, and which gives the Southern country cheap fuel for steam and domestic purposes. This coal finds a market all over the South, in the West Indies and Mexico. It is a fine coal for vessels. It produces the best of coke. Steam coal can be had in the Southern Railway territory at very low prices. Splendid coke is sold at much lower prices than is to be had in the Northern manufacturing centers.

In Alabama alone are 4000 coke ovens, and in the South about 8000. The coal production of Alabama in 1898 was 6,527,756 tons, of Tennessee 3,084,748 tons.

The Alabama and Tennessee iron regions tributary to the Southern Railway produce both brown and red hematite ores, while in Western North Carolina are magnetite, hematite and specular ores. The pig-iron production in Alabama and Tennessee in 1898 was 1,300,000 tons, all of a fine quality. These States produce the cheapest iron in the world, and now have a large foreign, as well as domestic trade. The production of basic pig-iron has led to the successful production of the finest open-hearth steel, and the steel development has of late been very marked. Successful steel-making was inaugurated at Birmingham in 1897, and now a second plant, with a capacity of 1000 tons a day, is nearing completion, and alongside of it are wire and other mills to take its product. Arrangements are now about completed for another 1000-ton-a-day steel plant in the Birmingham district. Limestone and dolomite are abundant in the Southern Railway territory. Ore, limestone, dolomite and coal are found in close proximity, and so have made possible the cheapest production of iron and steel known anywhere. It naturally follows that in these regions are the best advantages for all plants using iron or steel. The mineral wealth of the South in the Southern's territory is great outside coal and iron. There are rich gold veins, offering fine opportunities for the miner and capitalist. Copper, zinc, lead, mica, bauxite, manganese, corundum, graphite are all found in paying quantities.

The Southern Railway reaches the fine marble, granite and clay districts of the South. In East Tennessee, Georgia, Alabama and North Carolina are deposits of the finest marble, and there are to be had many unopened quarries. The South produces in many places beautiful granite, suitable for monumental as well as other purposes. The best kaolin deposits in the country are in North Carolina, and there are others not fully developed in South Carolina, Alabama and elsewhere, offering good advantages for potteries. Valuable slate deposits are also found. Fine

glass sand exists in Alabama and Georgia and elsewhere, and a new plant is the Dixie Glass Works at Tallapoosa, Ga.

TIMBER AND FURNITURE.

The Southern Railway penetrates the best timber districts of the United States east of the Rocky mountains. It reaches the great hardwood regions and the pine forests of the South. The available supply of good hardwood timber left standing is now nearly all in the Southern States, and to these States factories all over the country using hardwood are looking for their supplies. This fact gives the Southern country an immense advantage over

Hickory, Thomasville, N. C., Greenville, S. C., Goldsboro, Mebane, Asheboro and other places have large and successful furniture factories, and all offer superior inducements for the same line of manufacture. The timber of the Southern Railway region includes oak, chestnut, walnut, poplar, white pine, the yellow pines, elm, hickory, pecan, maple, ash, hemlock and many other woods. The supply of woods is excellent for pulpmaking.

THE COTTON INDUSTRY.

The Southern Railway goes to the cotton-producing districts of the South east

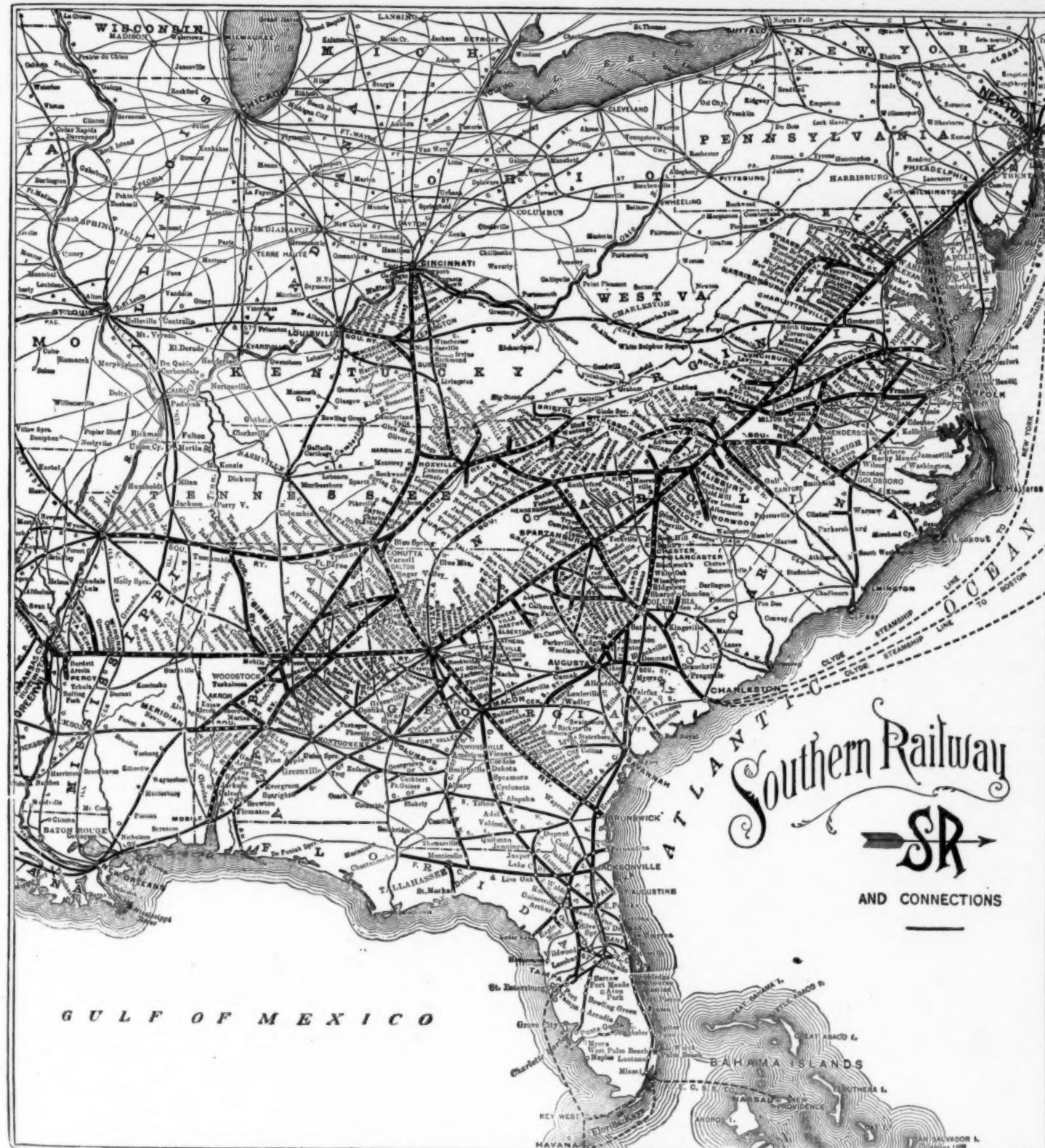
\$8,000,000 or \$9,000,000 in the cotton-mill industry on the Southern. These figures do not include projects, but real corporations where work is being done. The growth of the domestic and export cotton trade warrants the building of many more mills, and the cheapness of operation in the South and the great success of Southern mills point to this section as the place of the continued great development of the industry. The Southern is the mill line of the South, and along it are found the finest available sites.

The knitting-mill industry in the South is not so extensive, but is having the same

advantages for generating electricity, which operates some of the finest plants in the South. There are many undeveloped powers which are available for mill sites and which will give manufacturers unusually cheap power. These water-powers add greatly to the South's advantages for manufacturing.

FARMING OPPORTUNITIES.

The Southern Railway reaches many of the best agricultural regions of the country—regions where special and diversified farming yield the best returns. They are blessed with fine soils, pure water and with the advantages of long seasons, in which,



other sections for the manufacture of furniture. This industry has had a wonderful development at points along the Southern Railway during the past five years, and indications are that the furniture-makers of the North will seek the South in large numbers in the next few years. At High Point, N. C., there are now fourteen furniture factories, and at many other places the development of the industry has been remarkable during the last two or three years. One of the largest desk-making concerns of the country has recently located at Knoxville, Tenn., removing from New York State, Atlanta, Chattanooga, Rome, Durham,

of the Mississippi, where the finest of sea-island, long-staple and other varieties are raised. The cotton mills are seeking the cotton fields, and most of the Southern mills are located on the Southern Railway. On the 1st of January reports direct from mill managers showed 4,000,000 cotton spindles in operation, or ready to be put in operation, in the eight States which the Southern Railway enters, of which 2,800,000 in round numbers were on the line of this road. In 1898, 306,000 new spindles were placed in the mills along the road, and in 1899 the number will be 500,000 or 600,000 more. These will mean an investment this year of

development along the Southern Railway as the cotton industry. New plants have lately been established at a half-dozen or more places. There are just as great advantages along the road for knitting mills as there are for cotton mills.

ABUNDANT WATER-POWERS.

In the South are abundant water-powers, developed and undeveloped. They are found in Virginia, the Carolinas, Georgia, Alabama, Tennessee and Kentucky, on the James, Dan, Yadkin, French Broad, Holston, Tennessee, Saluda, Congaree, Savannah, Wateree, Santee, Chattahoochee, Coosa, Ocmulgee, Tugaloo and other streams. In many places these powers

in many cases, two and three crops a year can be produced, and offer the thrifty homeseeker better opportunities than are found elsewhere. Lands are cheaper than in the West, and for diversified farming market advantages and good profits are superior. They give the maximum of profit from the minimum of labor and investment. Available lands for colonies or for small or large farms are found in every region along the railway. The grains yield abundantly. Wheat, corn, oats, rye, all bring good prices at local markets. Tobacco-raising is most profitable, and there is room for many more tobacco farmers.

Raising Stock.

The South is the best stock-raising district of the United States. The grasses grow luxuriantly, the water supply is the purest and the mild climate enables stock to pasture ten months in the year. The advantages are equally noticeable for horses, cattle, sheep or hog raising. Dairying is a most profitable industry. Stock farming and dairying is largely on the increase.

Growing Vegetables.

The Southern Railway reaches the finest truck and fruit-growing districts in the coast country and in the interior. All kinds of vegetables and small fruits are grown for home and Northern markets, and the industry is constantly extending. In Tidewater Virginia and other sections of that State, in North and South Carolina, in Georgia, Alabama, Tennessee and Mississippi, the best of soils and climates for truck-growing are found and lands are cheap. Around Charleston, S. C., Brunswick, Ga., Mobile, Ala., in Southern Virginia, North Carolina and in other sections low-priced lands may be had by truck and fruit-growers. There are several thousand acres of fine truck lands in the South Carolina coast region which are now on the market through the Southern Railway at the cheapest prices, in a district not excelled in the United States for truck and fruits, a district which has the industry developed to a great extent and which ships vast quantities to Northern markets. The conditions necessary for the success of the vegetable-growing industry are a favorable climate, light, sandy soils, in which the vegetables can be planted early and which will force them to an early maturity, and quick direct transportation facilities to the Northern markets. All of these conditions are found in the truck lands along the Southern as in no other section, and when the cheapness of land is considered, together with the great opportunities for extending the business, it will readily be seen that early vegetable-growing for profit has a bright future.

Fruit Culture.

The past few years have seen splendid developments in the fruit-growing business of the South, and especially in those portions adjacent to the Southern. The climate of very many sections is unexcelled for peaches, grapes, apples, pears, plums and other fruits. The mountain and Piedmont regions are producing the

finest apples and offer the grandest opportunities for apple-raising, while the peach districts in Virginia, Carolinas, Georgia, Alabama, Mississippi and Tennessee are famous. The Southern grapes going to Northern markets this year from grape colonies and districts along the Southern establish the South as the best vineyard territory in the country. The fruit and truck districts offer splendid advantages for new canning factories.

Climate and Resorts.

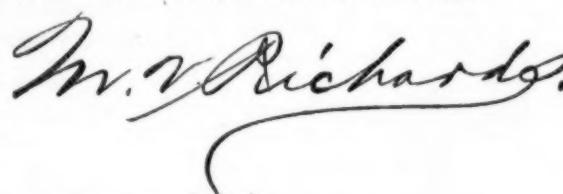
The climate of the Piedmont, mountain and coast districts of the Southern country is mild, genial, equable and healthy, and is unsurpassed for enjoyment and good health. There are few places where the summer heat is excessive; none where the winter is severe. Along the Southern is found the ideal climate for an all-the-year-round home in city or country.

The mountain regions afford the most picturesque scenery, coupled with the most delightful air, and are not equaled as health or not excelled as pleasure resort districts. *On the Southern are the most noted, most beautiful, most healthful and most enjoyable of Southern summer or winter resorts.* The Southern Railway runs to Asheville, Hot Springs, Tryon, Hendersonville, the Brevard and Sapphire districts, Columbia, Aiken, Summerville, Augusta, Charleston, Teccoa, Mount Airy, Brunswick, near Jekyl and St. Simon's Islands, other well-known resort places, and numerous medicinal springs, and to all gives the quickest and finest service for tourists and travelers.

How to Secure Information.

Information in regard to the resorts of the South, rates of fare for tourists and others over the Southern Railway will be furnished by Mr. W. A. Turk, general passenger agent, Washington, D. C.

All parties desiring information about the South may receive it by applying to Mr. M. V. Richards, land and industrial agent, Washington, D. C. Manufacturers will be given the fullest information in regard to the best points in the South for various industries. Parties desiring to locate plants may find through him local capital which will interest itself with outside capital in the hands of experienced business men. This department of the company issues carefully-edited and conservative publications in regard to the minerals, forests, agricultural and other resources of the South.


TRADE NOTES.**Alexandria as a Manufacturing Location.**

One of a few towns in the South that still retains much of the colonial atmosphere is Alexandria, Va. But modern ideas in the business world have entered into the purposes of Alexandria's leading citizens, and there have been established in that staid city a number of important industries that contribute to its growth. The city is a thriving business center, and the activity to be observed in the commercial and manufacturing sections contrasts oddly with the colonial architecture that may be seen. The annual business of the city is now stated to be nearly \$7,000,000, and the town is growing rapidly as a manufacturing location. The advantages which are offered as a location for factories of all kinds include land at low figures, rail and water transportation and nearness to supplies of raw material. Men with capital are invited to investigate Alexandria and establish industrial plants, while young men without money showing themselves capable of profitably employing capital in manufacturing will be given assistance and every opportunity. The Alex-

andria Business Men's League, of which Mr. M. B. Harlow is president, intends to make strenuous efforts to induce the establishment of different new manufactures, and will assist in locating them.

Richmond Brick in New York.—In a number of the new buildings, which are such striking features of New York architects, a Richmond industry is well represented in the bricks made by the Powhatan Clay Manufacturing Co. This company has its works at Richmond in charge of Mr. H. K. Terry, vice-president and general manager, while the New York office of the company in the Townsend Building, corner of Broadway and Twenty-fifth street, is in charge of Mr. Sol Rosenbaum, second vice-president. The company manufactures cream white, silver gray, red, buff and speckled artistic front bricks. The cream-white bricks are made in all sizes and shapes from pure natural white foot hill clay by the stiff-mud process. They are hand-pressed, and will not change color. Silver-gray bricks are a new style made from natural white clay in combination with jet black imported manganese. It is claimed that these are the only brick of the kind in the market absolutely free from objectionable yellow tinge. Among

the structures in New York in which the bricks of this company have been used are the Chesebrough Building, Pearl and State streets; the apartment-houses, Seventy-ninth street and Amsterdam avenue; one Siegel-Cooper Building, Sixth avenue and Eighteenth and Nineteenth streets; the Livingston; the stores and lofts at 580 and 590 Broadway; the Hammerstein Company's new theater; the Victoria; Christ English Lutheran Church, Brooklyn, and many other representative buildings.

Shipbuilding at Richmond.—The attention of the whole country has recently been attracted to Richmond as a manufacturing center by the launching of the torpedo-boat Shubrick. This vessel was built at the shipyard of the William R. Trigg Co., which has not only demonstrated the ability of Richmond as a shipbuilder, but will develop its position as such. The enterprise of the company in starting a ship-yard was due to the desire of the general government to have a place secure against possible enemies where war vessels could be constructed in fresh water convenient to the coast and yet sufficiently inland. Richmond is pre-eminently such a place, and the first reward of the William R. Trigg Co. for its undertaking was the contract to build for the United States Navy three torpedo-boats, the Shubrick, Stockton and Thornton, and two torpedo-boat destroyers, the Dale and Decatur. The torpedo-boats are to be 175 feet long, and are to make a speed of twenty-six knots at 165 tons displacement with 3000 indicated horse-power. The destroyers are to be 245 feet long, and must make a speed of twenty-eight knots. The company already employs about 600 men, and it is thought will have to increase its force by 1000 to meet the demands of other work, which includes the building of one of the new cruisers for the navy. Richmond has the advantage, not only of location, but its mild climate, excellent school system, markets and church facilities make it a desirable home for workingmen.

Harness Goods.—The increased demand for the numerous products of the manufacturing world this year has entailed busy times upon the manufacturers. In all lines there is seen unwonted activity, and the new wealth thus created causes in its turn a demand for other goods. In common with other manufacturers, the makers of harness, saddlery, hardware, collars, boots, turf goods and kindred articles made mainly of leather have experienced the increasing demand. One of the most extensive and well-known establishments in the United States offering the goods mentioned is that of Messrs. Lerch Bros. of 110-12-14 Hanover street, Baltimore, Md. The Messrs. Lerch have been supplying consumers all over the United States for years, and their experience and modern equipment enables them to show a line of goods not excelled by any in its class. The Lerch goods have always well sustained their reputation, and will continue to possess those qualities that make them preferable. Dealers desiring catalogues and price-lists may obtain them on application.

Veneer-Cutting Machinery.—The development of Birmingham, Ala., as one of the leading manufacturing and commercial municipalities of the South has been a prominent feature of the section's progress. The many industries now quartered at Birmingham made an important acquisition early this year when works for the production of veneer-cutting machinery and gas and gasoline engines were established. This plant is owned by the Blakeslee Company (formerly Du Quoin Iron Works Co. and Blakeslee & Bro. of Du Quoin, Ill.), the members of which have for twenty-five years manufactured veneer-cutting machinery, their product having met with a wide use and ever-increasing demand. Such was the demand that considerable enlargements were decided upon, and after timely consideration it was decided advisable to remove to Birmingham and there build an entire new plant. The company's president and manager is Mr. G. F. Blakeslee; G. C. Van Keuron, superintendent; H. J. Blakeslee, vice-president, and C. B. White, secretary-treasurer.

Modern Roofing.—Among the many improvements that modern building methods have caused to be introduced are roofings of various kinds. Metal roofing in various forms has increased in use during recent years, and now its desirability for the purpose specified is generally acknowledged. This roofing appears as metal tiles, metal slates, ornamental shingles, ridge coping, hip covering, valleys, etc. The Cortright Metal Roofing Co. of Philadelphia, Pa., is manufacturing a complete line of these goods, they having been on the market for several years, and their success has been permanent. The Cortright system has made

a reputation everywhere on account of its weather-proof qualities, ease of application, appearance and durability. The standard grade of this roofing is made of a fine quality of tinplate, afterwards painted, and when desired is furnished galvanized, that is, the sheets are first coated with tin, then the shingles are stamped, and after that are galvanized. Prominent railroads of the country use these roofings.

Goodsell's Packings.—Various classes of mechanical devices and machinery require packing in their operation. The use of packing tends to assist in producing that satisfactory and economical operation of machinery that is always to be desired. One of the prominent reliable manufacturers of this country producing a complete line of packings is the Goodsell Packing Co. of 33 South Canal street, Chicago. The company claims to transact the largest rod and pump packing business of the West. The recent reduction of prices in the company's "98" stitched pump packing (from seventy-five to sixty-five cents) places this product on a level (as far as regards prices) with plain or ordinary goods, and the guarantee of wear is "double in results." About January 1 the Goodsell Packing Co. will issue a new catalogue, which users may obtain copy of on application.

Textile-Mill Supplies.—The rapidly-increasing growth of the cotton-milling industry in the South is constantly enlarging the market for machinery in that section. The hundreds of thousands of spindles and the looms that have been installed this year in new mills and enlarging plants constitute a volume of machinery business not heretofore equalled in the history of Southern development. The furnishing of this machinery has been the means of establishing a number of Southern supply houses. One of the new companies in this line is the Textile Mill Supply Co. of Charlotte, N. C. This concern has had a prosperous business since it first commenced to solicit contracts, which it makes for anything in mill supplies, also contracting for the equipment of cotton mills ready for operation.

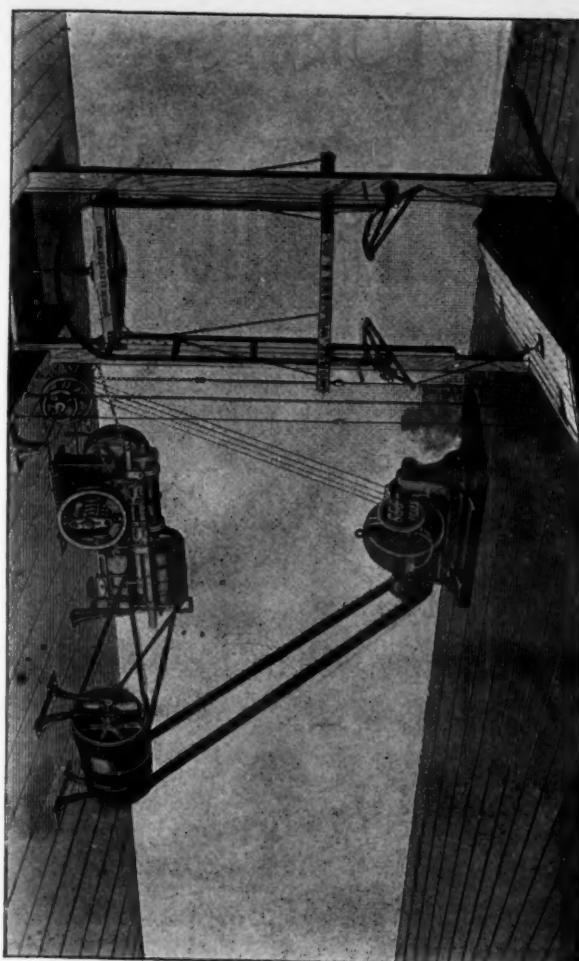
The Chattanooga Paint Co.—Mr. A. E. Tucker, manager, Chattanooga, Tenn., manufactures a superior grade of red oxide of iron paint. It is claimed to be the best in the market for tin, iron or shingle roofs, railroad cars, bridges, barns, fences, etc.; in fact, any place where protection from the weather is desired. It is also extensively used by many of the largest carriage and wagon manufacturers and paint grinders in the United States. The company's metallic paints and mortar colors are said to be unsurpassed in strength, fineness and body. It claims its red, brown, buff and black mortar colors to be the strongest and most economical on the market. Samples and quotations will be furnished on application.

Birmingham Engines North and West.—The Hardie-Tynes Foundry & Machine Co. of Birmingham, Ala., has commenced to receive orders for its product from the North and West. Two orders recently filed by the company were from New York for a heavy Corliss engine, and from Dayton, Ohio, for a large type Corliss engine. The Hardie-Tynes Company has a complete foundry plant of the most modern type and equipment, and produces a line of foundry manufactures that are meeting with general success. Thus the South begins to compete with the North in its home markets for machinery.

Baltimore Rubber Company.—The Southern headquarters for the New York Belting & Packing Co., Limited, and the Sawyer Belting Co. is the Baltimore Rubber Co., 101 Hopkins Place, Baltimore, Md. This company carries a big line of rubber and leather belting, packing, hose, mats, valves, improved stitched canvas belting, mechanical rubber goods, fire-department hose and underwriters' and factory cotton hose.

For Mill Supplies.—The Charlotte Supply Co. of Charlotte, N. C., has been in successful operation for some time as a general textile-mill furnisher. It manufactures pure oak tan leather belting, and gives special attention to furnishing new mills complete. Mr. E. A. Smith is president of the company, and Mr. J. P. Wilson is secretary and treasurer.

Training for Business.—One of the best-known commercial schools of the country is the Eaton and Burnett Business College of Baltimore. It has a thorough, comprehensive course, and its corps of skilled teachers has trained thousands of young men and women for business careers in Baltimore and the South and other portions of the country.



BELT POWER FREIGHT ELEVATOR,
Operated with Electric Motor or direct from Line Shaft.

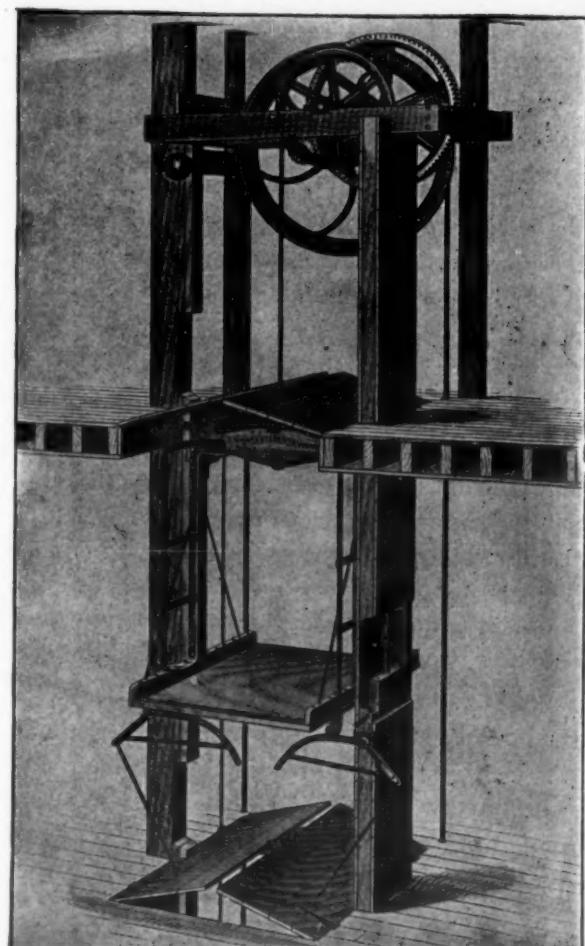
Morse, Williams & Co.



WE make a specialty of furnishing Elevators complete, F. O. B. Philadelphia, with full drawings and instructions for erection by your mechanic. By this means you save the expense of sending a man from Philadelphia . . .



SEND . . .
for price of Elevator, F. O. B., giving full information as per inquiry sheet, which will be sent on application.



HAND POWER ELEVATOR.
Capacity—500 to 2000 pounds.

CHEAP POWER FOR MANUFACTURERS.

Virginia Electrical Railway & Development Co.

RICHMOND, VIRGINIA,

Will Commence Operation About March 1, 1900.

CONVERTING JAMES RIVER WATER POWER INTO ELECTRIC POWER.

Initial Capacity of Plant 14,000 H. P.

In order to introduce new industries, manufacturing sites, in the town of Manchester, on the tracks of the Seaboard Air Line and Southern Railroads and accessible by several other lines of railroads, will be supplied to manufacturers using our power.

Industries Established on This Property are Forever Free from Municipal Taxation.

Those interested will, for particulars, correspond with the Company,

1006 E. Main Street, Richmond, Virginia.

SOME FACTS ABOUT RICHMOND, VA.

It is located at the head of navigation and at the foot of the James river rapids.

It is amply supplied with water.

Its climate is temperate and salubrious.

Its health record is excellent. Epidemics and tornadoes are unknown.

It is noted for its historical associations, educational institutions, churches, &c., &c.

Its urban and suburban population is estimated at 125,000.

Its business facilities are unexceptionable and its growth is steady and substantial.

Its assessed values in 1898 were over sixty-eight and one-fourth million dollars.

Its banking capital is \$6,389,939; bank resources, \$21,007,987.22; bank deposits, \$11,037,772.96; showing an increase of resources in 1898 of over one and one-fourth million dollars, and an increase over 1890 of nearly five and one-half million dollars, and an increase of deposits in 1898 of over \$1,000,000, and an increase over 1890 of two and one-fourth million dollars. Bank clearings increased in 1898 over seventeen and one-fourth million dollars, being \$133,618,376.10.

Its manufacturing establishments increased in number in 1898 seventy-one. They employed 17,317 hands and turned out products worth \$34,865,725.

Its jobbing trade amounted to \$31,705,770.

Dividends and interest paid January 1st, 1899, increased, it is estimated, twenty-five per cent. over January 1st, 1898.

It is the largest manufacturing centre of tobacco in the South.

Its iron industries, next in importance, include the only locomotive works in the South (supplying large orders in this, and lately in foreign countries), car-axle works, railroad-spike works, nail works, horseshoe factories, tin-tag factory, a tin-roofing factory, &c., &c. It has the largest fertilizer company in the South; the largest paper-box factory; the largest paper mills, with an additional mill of mammoth size for manufacturing pulp and paper about to be established; the first paper-twine factory; a world renowned meat-juice factory; the famous cedar and woodenware works; the largest baking-powder factory; a large trunk and bag factory; the largest publishing house in the South; and some of its most enterprising and wealthy business men have just established a ship-building plant and now have large and important contracts with the Government. All these are specialties for which Richmond is noted, as well as for the first-class quality of the products of its other varied and important industries.

Its water power, now only partially used, is about to be electrically developed, increasing this power from 300 to 400 per cent.

The mileage of the railroad systems centred at Richmond, including the N. & W. and the S. A. L., is 14,000 miles, with the prospect of two new railroads—the Richmond, Petersburg and Carolina, and the Richmond and Tide-water.

The steamer lines to Richmond and its ports of entry—Newport News and West Point—are in coastwise trade four and in foreign trade three.

All indications point most encouragingly to a greatly improved business in 1899 over the market improvement in 1898, to an important development of its manufacturing and commercial interests, to a larger employment of labor, to an increased population and to the material progress and growth of the city.

IT IS A WIDE OPEN CITY TO ALL MERITORIOUS ENTERPRISES.

THE CONTINENTAL TRUST COMPANY,

11 South Street,

BALTIMORE, MD.

CAPITAL, \$2,000,000. SURPLUS, \$2,000,000.

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Secretary-Treasurer.

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Directors.

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Transacts a General Trust Business.

Acts as Fiscal Agent for the payment of Bonds, Coupons, Dividends, etc., of States, Municipalities, Railroads and other Corporations; as Trustee under Mortgages or Deeds of Trust securing Issues of Bonds, and as Registrar and Transfer Agent of Stocks and Bonds; as Trustee of Estates and Individuals; as Administrator, Executor, Guardian and Receiver.

A Legal Depository for Court and Trust Funds. Money Loaned on Approved Collateral. Interest Paid on Deposits.

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MEMBERS BALTIMORE STOCK EXCHANGE.

MIDDENDORF, OLIVER & CO.**Bankers and Brokers,****No. 205 East German Street**

(KEYSER BUILDING).

BALTIMORE, MD.

Stocks and Bonds Bought and Sold on Commission. Special Attention Given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit Furnished.

MARYLAND TRUST CO.

COR. SOUTH & GERMAN STS., BALTIMORE.

CAPITAL, - - \$1,500,000.00. * SURPLUS, - - \$1,500,000.00.**A Legal Depository for Court and Trust Funds.**

ACTS as Financial Agent for States, Cities, Towns, Railroads and other Corporations. Transacts a general trust business. Lends money on approved security. Allows interest on special deposits. Acts as Trustee under Mortgages, Assignments and Deeds of Trust; as Agent for the Transfer or Registration of Stocks and Bonds, and for the payment of coupons, interest and dividends.

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JOHN L. WILLIAMS & SONS, *BANKERS,*

DEALERS IN

Southern Investment Securities,

Negotiators of Railroad and Municipal Bonds. Draw Bills of Exchange and issue Letters of Credit available in all parts of the world.

Conduct a General Banking Business.

Corner 10th & Main Streets, Richmond, Va.

Cable Address: WILLIAMSON, Richmond.

LARGEST CAPITAL OF ANY BANK OR TRUST COMPANY IN THE SOUTH-ATLANTIC STATES.

+ +

Richmond Trust & Safe Deposit Co.,

NORTH WEST CORNER MAIN AND TENTH STREETS,
RICHMOND, VA.

Capital, \$1,000,000.

Personal Interviews
and Correspondence Invited.

Does a General Trust Company Business, and Respectfully Solicits the Accounts of Banks, Bankers, Corporations and Individuals.

Liberal Interest Allowed on Daily Balances.

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HENRY LANDON CABELL, Sec'y & Treas.

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FRANK A. DAVENPORT, } Vice-Presidents.

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WILLIAM F. COCHRAN, Yonkers, N. Y.
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FRANK A. DAVENPORT,
S. W. TRAVERS,
W. JOSIAH LEAKE,

The First National Bank

OF BIRMINGHAM, ALA.

Statement to Comptroller (Condensed), September 7, 1899.

RESOURCES.	LIABILITIES.
Loans and Discounts.....	\$1,302,542 75
Overdrafts.....	699 21
U. S. Bonds and Premiums.....	52,875 00
Other Stocks and Bonds.....	60,949 00
Bank Building.....	51,000 00
Other Real Estate.....	6,395 47
CASH.	
In Vault.....	\$238,132 48
With Banks.....	705,577 85
With U. S. Treas.....	2,900 00
	\$2,421,062 76
	DEPOSITS.
Individual.....	\$1,786,670 06
Bank.....	279,981 97
	2,066,652 03
	\$2,421,062 76

N. E. BARKER, President.

J. H. WOODWARD, Vice-President.

W. P. G. HARDING, Second Vice-President.

TOM O. SMITH, Cashier.

J. H. BARR, Assistant Cashier.

The officers of this bank will be pleased to meet or correspond with those who contemplate making changes or opening new accounts.

COLLECTIONS A SPECIALTY.

DIRECTORS:

T. T. HILLMAN, Retired Iron Manufacturer.	ROBERT JEMISON, Prest. Consolidated Electric Light Co. Vice-Prest. Birmingham Railway and Electric Co.
E. M. TUTWILER, President Tutwiler Coal, Coke & Iron Co.	ERSKINE RAMSAY, Chief Engineer and Asst. Gen. Manager Tennessee Coal, Iron & R. R. Co.
B. F. MOORE, Secretary and Treasurer Moore & Handley Hardware Co.	T. H. MOLTON, Real Estate and Insurance.
F. D. NABERS, President Nabers, Morrow & Sinnige, Wholesale Drugs.	WM. A. WALKER, Attorney at Law.
W. S. BROWN, Merchant.	N. E. BARKER, President.

JAMES SLOAN, Jr., President.

OTHO H. WILLIAMS, Vice-President

CHAS. T. CRANE, Cashier.

Farmers and Merchants National Bank.

SOUTH AND LOMBARD STREETS,

BALTIMORE.

Capital, - - - - - \$650,000
Surplus and Profits, - - - \$400,000

Accounts of Banks, Corporations, Firms and individuals
Solicited.

Facilities extended in accordance with balances and
business responsibility.

Collections a Specialty.
Correspondence Invited.

The Norfolk National Bank, NORFOLK, VA.

No. 3368.

UNITED STATES DEPOSITORY.

Capital, - - - - - \$400,000

Surplus and Profits, July 1st, 1899, 247,000

September 7th, 1899.

RESOURCES.	LIABILITIES.
Loans and Discounts.....	\$1,091,601 46
U. S. Bonds (Market Value).....	945,000 00
Other Bonds (Market Value).....	407,200 00
Banking House (Assessed Value).....	50,000 00
Cash.....	\$166,101 56
Due from Banks.....	377,380 28
	543,481 84
	\$3,037,283 30

With well-established connections this Bank has unsurpassed facilities in every branch of legitimate Banking.

Prompt and careful attention given to collections.

We will be pleased to correspond with those who may contemplate making changes or opening new accounts.

CALDWELL HARDY, President.

A. B. SCHWARZKOPF, Cashier.

C. W. GRANDY, Vice-President.

W. A. GODWIN, Assistant Cashier.

Directors: C. W. Grandy, M. L. T. Davis, of M. L. T. Davis & Co.; W. D. Rountree, of W. D. Rountree & Co.; Wm. H. White, F. S. Royster, President F. S. Royster Guano Co.; R. P. Waller, John N. Vaughan, of Vaughan & Barnes; D. Lowenberg, J. G. Womble, C. A. Woodward, C. Billups, of C. Billups, Son & Co.; Thos. R. Ballentine, Caldwell Hardy, Wm. M. Whaley, President Roanoke R. R. & L. Co.; Henry Kirk.

NATIONAL BANK OF COMMERCE, OF BALTIMORE.

Capital \$300,000.00.

Surplus and Undivided Profits, \$161,193.00.

Deposits, \$1,239,549.00.

UNITED STATES DEPOSITORY.

ACCOUNTS SOLICITED.

DIRECTORS.

EUGENE LEVERING,	Of E. Levering & Co., Coffee Importers.
JOHN C. KING,	Attorney at Law.
CHARLES MARKELL,	Retired.
JNO. A. TOMPKINS,	President Citizen's Trust & Deposit Co.
WM. M. POWELL,	Of Wm. M. Powell & Co., Wholesale Grocers.
HENRY WILLIAMS,	President Weems Steamboat Co.
WM. KLEINLE,	President Norman Broom & Brush Co.
JOHN R. BLAND,	President U. S. Fidelity & Guaranty Co.
HIRAM G. DUDLEY,	Of Dudley & Carpenter, Commission Merchants.

EUGENE LEVERING, President.

JAMES R. EDMUNDS, Cashier.

EDWARD PRICE, Assistant Cashier.

Merchants' National Bank,

BALTIMORE, MD.

DOUGLAS H. THOMAS, President.

EDWARD H. THOMSON, Cashier.

WILLIAM INGLE, Assistant Cashier.

Capital, - - - - -	\$1,500,000.00
Surplus, - - - - -	500,000.00
Undivided Profits, - - - - -	304,009.10
Deposits, - - - - -	8,000,000.00

DEPOSITORY UNITED STATES GOVERNMENT.

THE BANK OF ANDERSON, ANDERSON, S. C.

Organized September 1st, 1891. Successor to National Bank of Anderson.

The Strongest Interior Bank in South Carolina.

**CAPITAL, - - - \$166,000.
UNDIVIDED PROFITS, 120,000**

OFFICERS:

J. A. BROCK, Prest. JOS. N. BROWN, Vice-Prest. B. F. MAULDIN, Cashier

OFFICERS:

J. A. BROCK.
J. M. SULLIVAN.
J. J. FRETWELL.

J. H. ANDERSON.
GEO. W. FANT.
JOS. N. BROWN.

J. G. DUCWORTH.
N. O. FARMER.
B. F. MAULDIN.

Send your collections to us. We will give them prompt and careful attention, making immediate returns at lowest rates of exchange.

Statement of Condition at Close of Business, June 30th, 1899.

ASSETS.	LIABILITIES.
Time Loans.....	\$445,908 48
Demand Loans.....	14,000 00
Cash on hands and in Banks.....	33,287 29
Real Estate.....	8,000 00
	\$501,195 77
Capital Stock.....	\$166,000 00
Undivided Profits.....	120,309 66
Deposits.....	208,669 80
Dividends Unpaid.....	1,886 00
Due Banks.....	4,330 31
	\$501,195 77

With nearly thirty years' experience in the Banking business, we know the wants of our customers and have the best facilities for accommodating them at all times.

WALKER, JOSEPH, President.
SLOAN, J. H., Vice-President.

WHITE, A. L., Cashier.
ANDERSON, L. K., Asst. Cashier.

The Merchants and Farmers Bank

OF SPARTANBURG, SOUTH CAROLINA.

Capital, . . . \$100,000.00 Undivided Profits, \$30,000.00

DIRECTORS:

JOS. WALKER,
H. A. LIGON,
W. F. SMITH,

A. G. FLOYD,
J. H. SLOAN,
T. H. CANNON,

J. K. JENNINGS,
L. C. CANNON,
G. W. NICHOLS.

Collections solicited and they will receive special attention.

WILLIAM S. GLENN,
Bond and Stock Broker,
SPARTANBURG, S. C.

Specialty: Handling Southern Cotton Mill Stock.

Should you desire to purchase Real Estate in Spartanburg write me. . .

TIMBER, MINERAL AND CITY PROPERTY.

JUDGE J. D. HORSLEY, Prest. W. A. O'BRIEN, Vice-Prest. E. P. MILLER, Cashier.

The First National Bank of Lynchburg,
LYNCHBURG, VA.

Condensed Statement from report to Comptroller of Currency of Condition as of June 30, 1899.

RESOURCES:	LIABILITIES:
Loans and Discounts.....	\$575,276 19
Overdrafts.....	445 12
United States Bonds (4 per cent)...	37,500 00
Other Bonds and Stocks.....	38,693 72
Premiums on United States Bonds.....	4,500 00
Banking House, Vaults, etc.....	25,985 00
Other Real Estate, (Buildings on Main Street, Lynchburg, Va., at City's Valuation).....	28,800 00
CASH:	
In Vault.....	\$145,481 12
Due from other Banks....	107,903 58
Due from United States Treasurer (5 per cent. fund).....	1,687 50
	255,072 20
	\$966,152 23
	\$966,152 23

STATE OF VIRGINIA, CITY OF LYNCHBURG, SS.
I, E. P. MILLER, Cashier of the above-named Bank, do solemnly swear that the above statement is true to the best of my knowledge and belief.

E. P. MILLER, Cashier.

Subscribed and sworn to before me this 3d day of July, 1899.

J. B. NOWLIN, Notary Public.

RICHARD W. MAURY, BANKER AND BROKER,

ESTABLISHED 1886.

NO. 1015. E. MAIN ST., RICHMOND, VIRGINIA.

GOVERNMENT, STATE AND MUNICIPAL BONDS.

RAILROAD BONDS AND STOCKS.

VIRGINIA-CAROLINA CHEMICAL CO. STOCKS.

ALL MISCELLANEOUS SECURITIES.

SPECIAL ATTENTION GIVEN TO INVESTMENT SECURITIES.

FOREIGN EXCHANGE AND LETTERS OF CREDIT AVAILABLE IN ALL PARTS OF EUROPE AND ASIA.

CORRESPONDENCE SOLICITED.

The Bank of Commerce

NORFOLK, VIRGINIA.

Capital and Surplus, \$300,000

DEPOSITORY OF THE CITY OF NORFOLK.

Respectfully solicits the accounts of Banks, Corporations and Individuals, and offers exceptional facilities in Collections for this section and the State.

OFFICERS:

NATHANIEL BEAMAN, President.
K. B. ELLIOTT, Vice-President.
H. M. KERR, Cashier.
M. C. FEREBEE, Asst. Cashier.

Correspondence is Invited.

Cotton Factory.

BREWTON, ALABAMA,

Has Under Consideration the Building of a Large Cotton Factory,

and wants party or parties with experience and capital to aid in the enterprise. Water-power, Cheap Transportation and Fuel and many other advantages are assured. Address

W. H. STRONG, Mayor,
Brewton, Ala.

C. W. SMITH & CO., Real Estate Agents,

Warrenton, Fauquier Co., Va.

A LARGE LIST OF A NO. 1 BLUE GRASS FARMS FOR SALE

in Fauquier, Loudoun, Culpeper and Rappahannock Counties. The best grazing portion of Virginia.

SEND FOR CATALOGUE.

MOTTU, DeWITT & CO.

Bankers

and

Brokers.

Southern Investments, NORFOLK, VA.

CUYLER SMITH,

ATTORNEY AT LAW.

Atlanta, Ga.

Southern Investment Securities. Cotton Mills Stocks and Bonds. Industries Promoted and Located. Correspondence Invited.

TO MANUFACTURERS.

MIDDLESBOROUGH, KENTUCKY,

Population 5000, situated on the two largest Southern Railway Systems, viz: The Louisville & Nashville and the Southern Railway, offers to any manufacturing concerns FREE SITES exemption from taxation, cheapest and best fuel in the United States, unlimited water supply practically free, and abundant timber. Iron furnaces located here are producing 250 tons pig iron daily. The output of coal and coke in this valley is 30,000 tons per month. For further information address

H. L. UNDERWOOD, Middlesborough, Ky.

L. P. YERGER, COUNSELLOR AND ATTORNEY AT LAW.

GREENWOOD, MISS.

Represents Manufacturers, Promoters, Buyers and Sellers of Real Estate. Has abstracts of title in office.

BRISTOL, VA.--TENN.

BRISTOL is the terminal of five railroads, three of them, the Norfolk & Western, the Southern and the Virginia division of the Virginia and Southwestern being trunk lines.

It is also the centre of the mineral and timber belt of Southwest Virginia, East Tennessee, Eastern Kentucky and Western North Carolina. It is the new headquarters of the iron, steel, coal and coke fields of the South. It is the headquarters of the Virginia Iron, Coal and Coke Company, capitalized at \$10,000,000, which is the fifth largest producer of iron, coal and coke in the United States. It is at Bristol that the Columbian Paper Company, with \$400,000 capital, has just purchased 20 acres of land and commenced the erection of immense works for the manufactory of wood pulp.

Its cheap coal, coke and iron; its vast fields of virgin forests; its unexcelled transportation advantages, offer the finest opportunities to all kinds of manufactories.

Its many churches (all denominations); its graded public schools and four large colleges (one male, two female and one mixed, male and female); its opera house, electric cars, electric lights, unexcelled pavements, good pure water, and its high grade of citizens, offers all social advantages.

Its altitude, being 1760 feet above sea level, makes its climate most delightful, and free from malaria. Lung diseases are almost unknown.

Its Board of Trade asks that parties thinking of changing their location or establishing new enterprises, write it for full or any particular information regarding Bristol's many advantages.

The Mill Man

Will find it to His Advantage

to now Consider the Question of Locating
his Factory on the line of the

Southern Railway

Incomparably the Leading System in the South.

IT RUNS THROUGH Virginia, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Tennessee and Kentucky.

And Gives the Greatest Variety of Openings and Opportunities for all Classes of Factories.

The Advantages of Raw Material, Labor, Cheap Sites, Cheap Building, Good Markets and Low Taxation (in some cases no taxation for a series of years) make regions along the **SOUTHERN RAILWAY** the best in the United States for Profitable Industries.

Permit us to show you what we have to offer

Correspondence confidential.

M. V. RICHARDS,

Land and Industrial Agent, Southern Railway Co.
Washington, D. C.

MUELLER WATER PRESSURE REGULATORS.



These Regulators are used in all climates and under all conditions where an absolute protection to house fixtures is desired, and where one has no desire to experiment with new and untried devices.

Towns having excessive gravity pressure can protect their mains by these valves.

Catalogues and Circulars from

H. MUELLER MFG. CO.,
DECATUR, ILL.

CORSICANA, TEXAS,

County seat of Navarro County. Population 12,000. The largest inland cotton market in America. Wagon receipts 50,000 bales season of 1898. The oil city of the South—400 producing wells. Oil production over (\$2,000) two thousand dollars daily. Oil refining capacity 1,500 barrels daily. Natural gas and oil—cheapest fuel point in the South. Abundance of artesian water.

Wants a Cotton Mill.

Address CORSICANA COMMERCIAL CLUB.

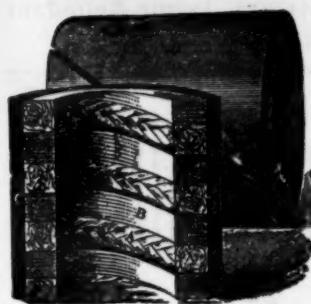
Clay and Water Power FOR SALE.

A large deposit of fire brick and building brick clay with a 100 H. P. water power. State geological report puts this fire clay as ranking higher than any other clay in any other State in the Union. Will sell water power and clay outright, or will put in stock company and keep large interest. Good opening also for cotton mill.

ADDRESS

L. T. LEE, Zenith, Ga.

THE GOODSELL PACKINGS.



GOODSELL'S
"SLEEVE"
PACKING.

Always ready; no waste; no misfits; no disappointments. All sizes from $\frac{1}{4}$ " to 4" rods in stock. No waiting on orders. For Steam, Air, Ammonia, etc.

Send measurements of Rod and Stuffing Box.

Price, \$1.50 Per Pound—Net.

GOODSELL'S "98" PUMP PACKING



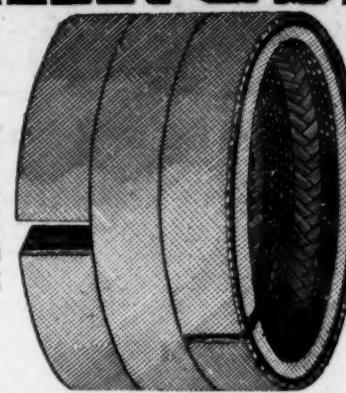
WAX END SEWED.

PATENT PENDING.

A FINE PUMP GRADE. Stitched to hold plies intact against separation and makes wearing edge as Invincible as Wood without sacrifice of elasticity. For Hot or Cold Water, Ammonia or Oil.

New Price, 65c. Per Pound—Net.

Suited for all classes of service and outwears all other makes of fibrous packings. Alternated coils of square dry flax and fine duck, with rubber back. No grease or oil to burn the fibre. Never fails to please.



Price, \$1.00 Per Pound—Net.

SHEET PACKINGS, GASKETS, VALVES, SQUARE FLAX, ETC. RELIABLE GOODS ONLY.

GOODSELL PACKING CO., Sole Mfrs.,

33 S. Canal St., CHICAGO.

To Cotton Mill Investors:



TOCCOA FALLS—186 FEET FALL.

I own a tract of 3000 Acres of land, nearly Four Square Miles of which is in one body, with the famous

Toccoa Falls

in the centre, just outside the corporate limits of the City of Toccoa, on the main line of the Southern Railway, 93 miles northeast of Atlanta. Over \$25,000 has been spent in improvements.

Toccoa is the terminus of the Elberton Air Line branch of the Southern Railway, and has a population of 2500, with one good Cotton Mill in successful operation, and another to be completed soon.

Situated in the famous Piedmont Belt, where the very best Cotton is grown, in the healthiest part of the United States, in a county where prohibition has been in force for fourteen years, this property is beyond any doubt one of the very best places for the erection of large Cotton Mills.

In addition, I control as fine

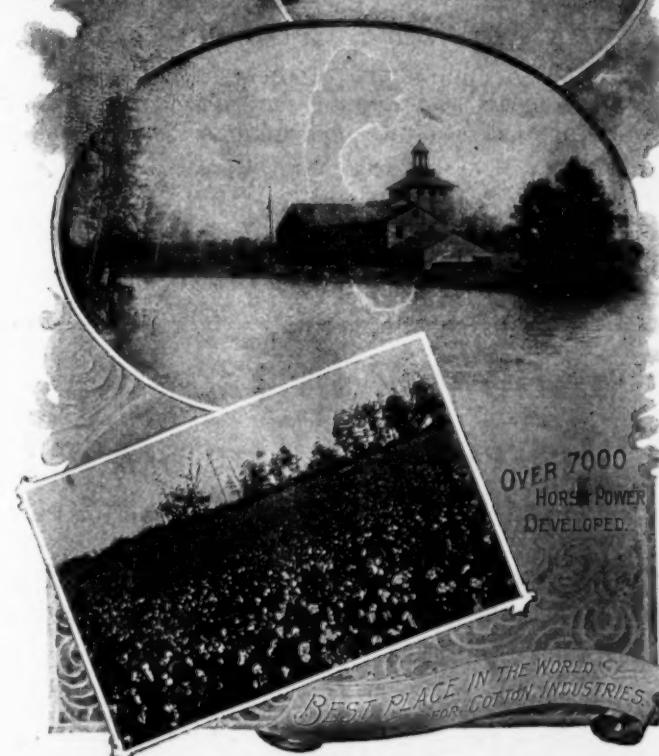
Water Power

as there is in the State, situated seven miles from this property, of

Roanoke Rapids Power Co.

Roanoke Rapids,
N.C.

83 Miles from Norfolk, Va.
12 Hours from New York.



OVER 7000
HORSE-POWER
DEVELOPED.

BEST PLACE IN THE WORLD
FOR COTTON INDUSTRIES.

5573 HORSE POWER, measured by U. P. CARSON, ASSISTANT UNITED STATES ENGINEER. The factories in operation and the one to be built want Electric Power, and have stated that they will take SIX HUNDRED HORSE-POWER, if power can be furnished by September or October 1st, 1900. The idea is to bring the power to Toccoa by cable for distribution to factories, etc. I have exclusive franchises for Electric Lights, Car Lines and Water Works in Toccoa, which could be supplied, and then have power to run many factories on this property.

This is no visionary scheme, but one of the finest and most practicable opportunities that can be offered to business men. I am willing to assist in the development of these properties, with the proper party or parties, or, I will sell the same on satisfactory terms.

E. P. SIMPSON, Owner, Toccoa, Ga.

REFERENCES.—John S. Vredenburgh, 521 N. Fourth St., Springfield, Ill.; W. A. Hemphill, Mgr. "Constitution," Atlanta, Ga.; Robert U. Garrett, Asheville, N.C.; W. A. Vaughn, Supt. Southern Railway, Atlanta, Ga.; W. A. Matheson and Toccoa Banking Co., Toccoa, Ga.

DAVIS JOHNSON CO.

Manufacturers and Dealers in

Rotary and Centrifugal Pumps.

PROPRIETORS OF THE
JOHNSON ROTARY PUMP,
CHICAGO, ILL.



Where large capacity is required under moderate head, or pressure, we recommend either the Rotary or Centrifugal, according to the conditions. Write us, giving full description of conditions and amount required, and we will quote you price and send catalogue of pumps driven by belt, steam or gasoline engine, or electric motor.

We are also dealers in Fire Apparatus.

1,000 HORSE-POWER FOR SALE!

The Finest Water-Power Property in North-East Georgia For Sale.

Located at Royston, Ga., on the Southern Railway in the "Piedmont Belt" in the midst of a PROSPEROUS and fine COTTON country. THE SITE IS PERFECT FOR COTTON MANUFACTURES.

The Power is four miles from Royston, at the nearest point to Royston and the Railroad on "Broad River" which runs through a DEEP and NARROW TROUGH down SUCCESSIVE RAPIDS for SEVERAL MILES. There is no BOTTOM or FARMING lands on either side to be DAMAGED by BACKED WATER.

The river at LOW WATER MARK at the narrowest place is 85 feet wide, 2 feet deep, running 5 miles per hour. A dam made 40 feet high will only extend from 200 to 400 feet in length and will not back the water off the property. The dam can be built almost without the use of a WHEELED VEHICLE. There are BLUFFS of ROCK at the building point from which all the stone needed can be "skidded" on the DAM or to a BOAT at the water's edge, just above the dam. At a trifling cost, 500 to 800 horse-power can be developed. Plenty of other power contiguous to mine. There has never been any attempt to bring this power into notice before. Information and inducements offered to investors.

ADDRESS
DAVID W. BROOKS,

— ROYSTON, GA.

LENOIR CITY, TENN.—A MANUFACTURING TOWN.

Water Power—Cheap Fuel—River and Rail Transportation—Fine Location For Cotton Wood—Iron Industries. Labor Abundant. Correspondence Solicited. For Information Address, SAM'L MARFIELD, Lenoir City, Tenn.

Water Power for Sale.

The New and Splendid Saw and Grist Mill Property Located in JOHNSTON COUNTY, N. C.

The property consists of 96 acres of beautiful rolling upland well suited for a factory village, and now contains Two Good Dwellings, Barn, Stables, Storehouse, etc.

One 60-inch Circular Saw-Mill, with capacity of 20,000 feet per day. Planer, Edger, Lathe Mill, etc., driven by one 54-inch Turbine wheel under 13½ feet head.

Grist-Mill building is 36x36, two stories, and furnished with three run of stones, Cleaning and Bolting Machinery, and has a daily capacity of 400 bushels. The Grist Mill is operated by three Turbine Wheels, and part or all can be run, at the will of the miller.

The Dam and Building are all of heart pine and white oak, and were built in 1894. All are now in first-class condition.

The pond covers by estimation 1400 acres, and holds an abundant supply of water to develop 300 horse-power the year round.

Logs are rafted to the mill down the stream for twelve miles, and the timber supply is estimated at 20,000,000 feet.

The Property is Admirably Located for a Cotton Mill,

Being in the center of one of the BEST COTTON COUNTIES IN THE STATE. The crop last year was estimated at 50,000 Bales. A full supply could be bought direct from planters and delivered at the Mill.

THE TITLE has recently been examined, and is pronounced by good lawyers to be absolutely perfect. Deed covers all land under water.

AS A FISH POND it is the finest in the State west of the Tidewater Section.

SHIPPING FACILITIES are first-class. The Atlantic Coast Line runs ten trains a day within 400 yards of the Mill.

Investors are invited to visit the property and make a thorough examination. For further information, call on or write to

E. J. HOLT, Smithfield, N. C.

COTTON MILLS

and all other Manufacturing Enterprises, seeking desirable location, can secure good sites in the

CITY OF SHEFFIELD, ALA.

with the following advantages:

WATER--Free.

COAL--\$1.25 to \$1.50 per ton.

LABOR--White, Cheap and Good.

The city of Sheffield is one of the growing and pushing cities of the South, offering an opening to all lines of business, and invites a close inspection of its opportunities.

Correspondence solicited from all interested parties.

W. R. BROWN & CO.

SHEFFIELD, ALA.

Good farm lands in the valley of the Tennessee river at from \$8.00 to \$15.00 per acre.

Secure Homes in the Rice District of Louisiana!

from THE NORTH AMERICAN LAND & TIMBER CO., LTD., of London, which now

Offers for sale on easy terms of payment Ten Thousand Acres of Choice Rice Lands, subject to Artificial Irrigation, in Southwest Louisiana, at from \$10 to \$15 per Acre.

Also a half-million acres at a lower figure, a portion of which is good rice land and other portions the very best grazing lands in the South.

The Company has completed an extensive system of irrigating canals about twelve miles in length with the latest machinery, and is now prepared to make very liberal contracts to furnish water for several thousand acres to be put into either rice or sugar cane in the season of 1900. Ideal conditions for rice farming. For full particulars address

NORTH AMERICAN LAND & TIMBER COMPANY, LTD.
LAKE CHARLES, LA.

Florida Phosphate.

We have a bed of pebble phosphate that borings show over a million tons. Want to sell same based on royalty or outright. Close to transportation. Address X Y Z, care Manufacturers' Record.

FOR SALE.

Large tracts of Iron, Manganese, and Copper Ores and Timber Lands. Fine Fire Brick and Terra Cotta Clays, Mica, Kaolin, &c. Large tracts of Chestnut, Oak and Fine Water Power. Write for full reports, maps, &c.

JNO. STEWART WALKER & CO.
Real Estate and Investment Brokers,
Lynchburg, Va.

To Capitalists and Investors.

A. A. CAMPBELL, Murphy, N. C., Real Estate Dealer in North Carolina, North Georgia and East Tennessee. Has had 35 years' practical experience in handling the immensely rich and varied mineral and timber lands throughout above regions, and now has for sale a large amount of Copper, Iron, Talc, Marble and Timber Lands.

MARBLE FALLS, TEXAS,

wants a FIRST-CLASS COTTON MILL, and will offer inducements to get it. We have splendid stone mill building 100x300 feet, two stories and basement; also one of the finest water powers in the State, which is within 150 feet of this building. We mean business, but will consider nothing but a first-class mill. Address

W. H. BADGER, MARBLE FALLS, TEXAS.

FOR SALE.

MY PLANTATION,

Situated on the Ocmulgee River, Ten Miles South of Hawkinsville in Pulaski County, Ga.

The place contains 1509 acres, 600 of which are cleared and now in a high state of cultivation; balance well timbered with yellow pine, cypress, oak and other hardwood timber, for which there is a constant and increasing demand. There are on the place ten cabins for laborers, with brick or rock chimneys; ten corn cribs or cotton-houses; large barn, with shelter for mules and cattle; flowing well of fine artesian water, and a large fish pond well stocked with the finest of fish. Boat landing on the place, where steamers usually stop at least twice a week. This farm has no superior in this section of Georgia. Price \$10 per acre. Call on or address

J. B. MITCHELL,
Hawkinsville, Ga.

Fort Smith, Arkansas.

ITS PECULIAR ADVANTAGES FOR PROFITABLE COTTON MILLS.

It has one of the finest climates in the Union—an ideal climate. Its death-rate is less than that of any other city having over 10,000 people.

It is surrounded by coal mines, working large numbers of miners, whose families are anxious to work in cotton mills.

It has a large number of factories, especially of those whose raw material is chiefly wood.

It is on the western edge of the largest body of hardwood and pine in the United States, thus insuring a constant supply of factory hands whose families need work.

FOR SALE.

Southern Cotton Mill.

Mill situated in the best milling District in North Carolina. Now in successful operation. The capacity is 350 looms and 4000 spindles, with room already built for 8000 additional spindles. Water power and steam. Good paying property. Owners wish to sell in order to concentrate their business. For further particulars address

COTTON FACTORY,
Care Manufacturers' Record.

WANTED.

A FURNITURE FACTORY and SPOKE and HANDLE FACTORY to locate in South Mississippi. Plenty of hardwood, cheap rates by rail and water to all parts of the world, accessible to New Orleans and Mobile market, large local trade. Also for Pottery and Brick Yard. Address

P. O. BOX 244,
MOBILE, ALA.

Water Power FOR SALE.

20,700 H. P. in Wateree Canal.

S. LOGAN LANG, Camden, S. C.

New Oil, Gas, Coal and Anticinal Map of West Virginia. Just issued by I. C. White and R. L. Morris, Price, mailed, folded, \$2.00; rolled and enclosed in tube, \$2.15.

WHITE & MORRIS,
P. O. Box 448, Morgantown, W. Va.

FOR SALE.

Tracts of Timber Lands, both large and small, covered with the different varieties of Southern Timber. Prices ranging from \$2.50 per acre up, according to the soil and timber.

Also have fine Cotton and Sugar Plantations at prices to suit purchaser.

W. H. SHIELDS, Natchez, Miss.

Men make Money

When they invest where opportunities are best. The town of Crowley, La., situated in the heart of the great rice raising district offers *exceptional advantages* to men of means.

Crowley

has a population of 5,000 people. It is fast becoming the clean rice center of the United States. It has six of the largest Rice Mills in America. It has daily and weekly newspapers, water works and electric lights, good churches of every denomination, public schools and colleges.

Two Million Dollars

are now needed to develop this place and the surrounding country. Half a million has been invested in irrigating canals; as much more is needed.

Crowley Needs

a Bank with \$500,000 capital.

It needs an Opera House.

A \$50,000 Hotel.

It needs two good Paper Mills to work up the hundreds of thousands of tons of rice straw that is being burned up annually.

If you have this capital, or any part of it, investigate this field. Full information will be furnished by

W. W. DUSON & BRO.

CROWLEY, LA.

LOUISVILLE, -KY.-



City Hall, Louisville.

**Gateway to the South.
Healthiest City in the South.
Richest City in the South.
Greatest Railroad Center.**

A City of 227,000 inhabitants, with ten (10) railroad systems located on the Ohio River; straight, wide, well paved streets, complete sewerage and every other requisite of a metropolis.

GIVES NEW FACTORIES FIVE (5) YEARS EXEMPTION FROM TAXATION,

the cheapest fuel in the United States. A good labor market, cheap dwellings and attractive living. For particulars address,

W. R. BELKNAP, President, J. C. VAN PELT, Secretary,

COMMERCIAL CLUB,

LOUISVILLE, - - - - - KENTUCKY.

"The Sunny South"

Has no Fairer Field for Energetic Enterprise than

* BARNWELL,

(County Seat of Barnwell County.)

SOUTH CAROLINA.

Situated at the crossing of the two great railways of the South Atlantic States—the Southern and the Atlantic Coast Line—and the only town in South Carolina which will be touched by the Atlanta-Charleston extension of the Seaboard Air Line, now under course of construction, Barnwell is easy of access and occupies a vantage-ground that no other Southern locality can claim. Midway between the foothills and the seaside, above the march of yellow fever, below the range of pulmonary diseases, nestled among the pines and free from cyclones and tornadoes, it is a haven of healthful rest to those seeking refuge from the long, cold Northern winters.

SPORTSMEN

Can find the best of quail, duck and fox hunting within easy walking distance.

SHERWOOD RACE TRACK

Offers as fine facilities for wintering horses as any place in the South.

HOME SEEKERS

Will find here wide open the gates of the New South to all worthy enterprise, and an old-time Carolina welcome for all newcomers.

HEALTH SEEKERS

Will find here all the climatic advantages that have made Aiken, S. C., (located a few miles distant) famous, and upon request board will be secured in private homes for all in search of quiet and rest.

TRUCK FARMING.

The finest Watermelons, Cantaloupes and Vegetables that go to the Northern markets are raised right here, and quick railroad schedules assure Truck Planters of the Top Prices in New York, Philadelphia and other large cities.

COTTON MANUFACTURING.

Every advantage to be derived from bringing the factories to the fields obtains here—Cheap Fuel, Abundant Supplies of Raw Cotton and a Large Territory of White Labor to draw upon.

WOOD-WORKING FACTORIES.

Abundant supplies of Yellow Pine, Oak, Ash, Maple, Poplar and other Hard Woods can be obtained reasonably and in unlimited quantities.

Home Seekers, Health Seekers, Pleasure Seekers, Sportsmen: Write to us and let us secure you *Private Board in Southern Homes*, and come and see for yourselves. For further information address

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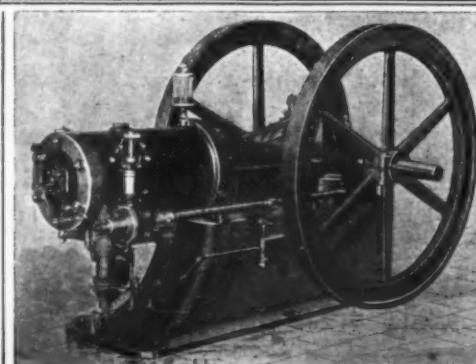
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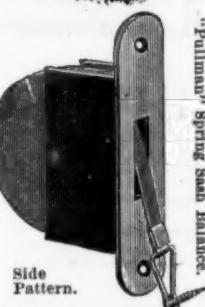
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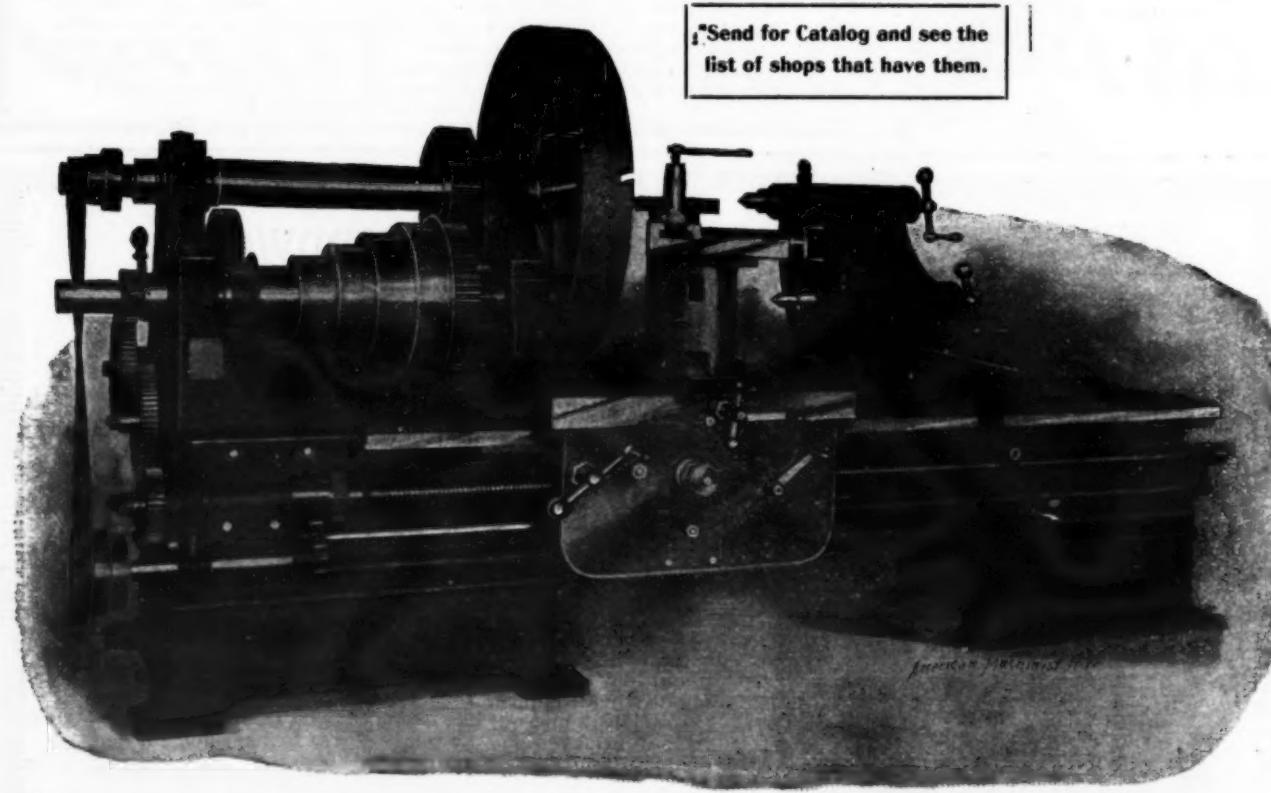
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Above prices f. o. b. your shipping point.

Write us before making shipment on our third offer, as we are at times fully supplied with lamps sent us on our other two offers.

Lynn Incandescent Lamp Company,
LYNN, MASS.



For Export and Domestic Trade

WE MAKE

BLIND FASTENINGS, BLIND HINGES,

In a Variety of Styles.

SHUTTER HINGES, SHELF BRACKETS, GATE
HINGES and LATCHES

In Several Styles.

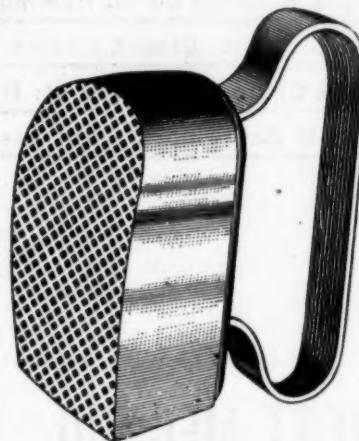
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We are makers of many of the goods formerly made by the Shepard Hardware Co., whose interest in the lines we acquired by purchase.

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New York Agents, ALDER & BOYD, 37 Warren St.



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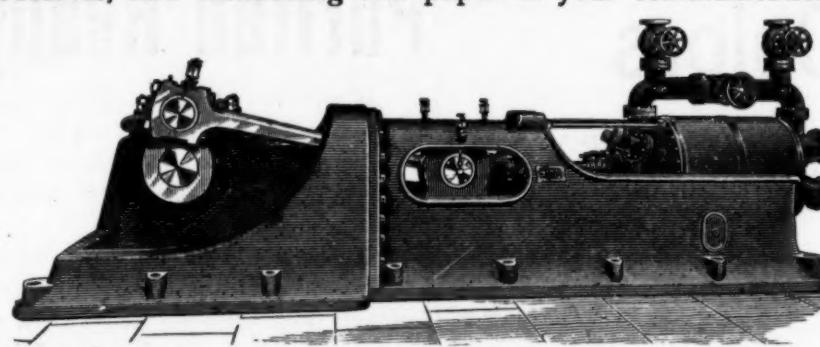
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You will be repaid for your trouble.

Our Ice Tools

Give
Excellent Service.

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THE LINDE.

THE
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Built on Truly Me-
chanical Principles.

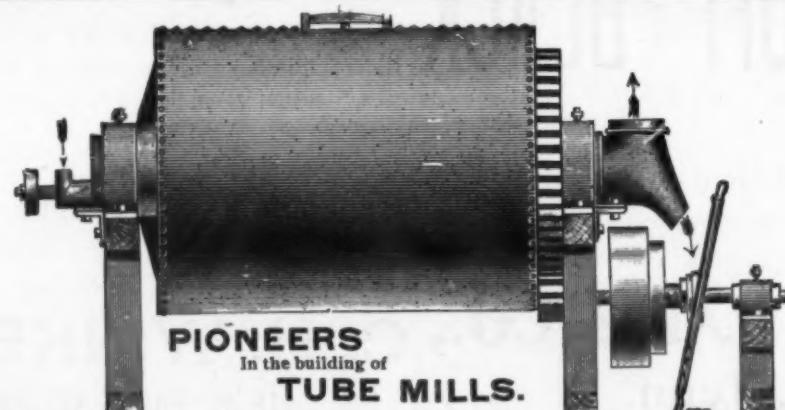
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NEVER LEAK.

139 Rees Street, Foot of Dayton,
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A Pulverizer That Requires No Attention.

THIS "CONTINUOUS FEED AND DISCHARGE PULVERIZING CYLINDER"

Will reduce to an absolutely impalpable powder, minerals, paints, drugs, chemicals, colors, cement and materials which cannot be successfully and profitably reduced by any other method.



GRINDS EITHER BY
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An absolute saving of time and labor in charging and discharging. Wearing parts easily renewed and at small cost. Let us send you full particulars and prices.

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Crushing, Grinding and Pulverizing Machinery.

Vitrified Emery Wheel Company,

Wheels Especially Adapted for
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Quality Unexcelled.
Satisfaction Guaranteed.



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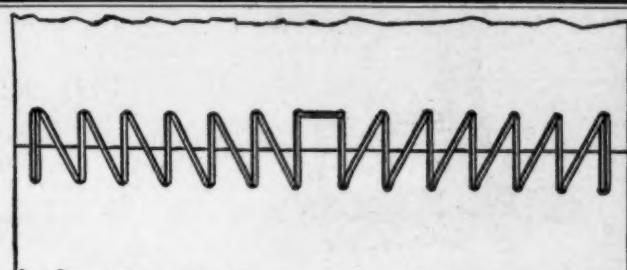
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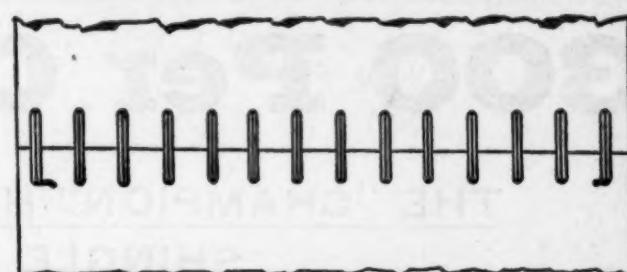
Respectfully yours,

W. L. McMANUS.

A thousand others like above are on file in our office.



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Rubber Belting, Packing,
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SAWYER BELTING CO'S

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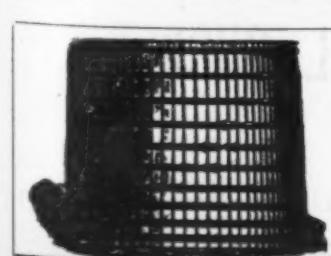
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All kinds of Special
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For BRIDGES, BOATS, STRUCTURAL IRON, and all Exposed Metal or Wood Surfaces.

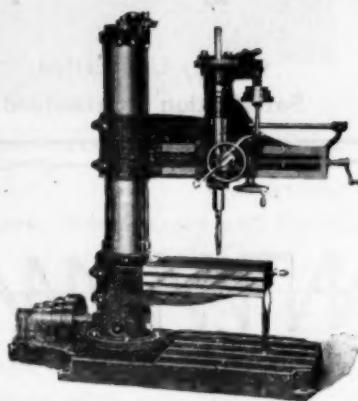
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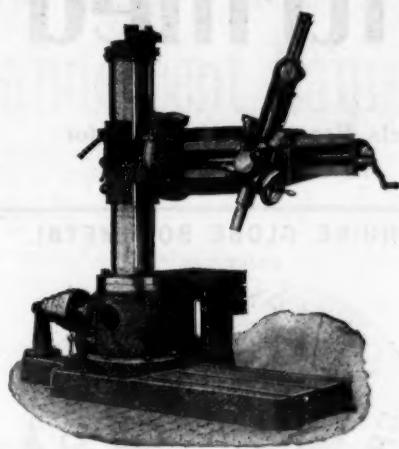
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A. 30.

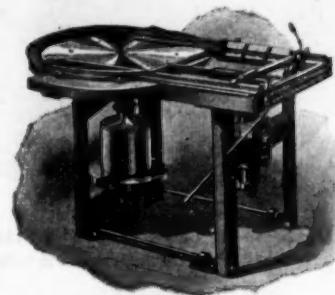
300 Per Cent Profit

Monthly on cost of this machine made by using

THE "CHAMPION" HAND FEED SPALTER SHINGLE MACHINE.

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LOCAL OIL MILLS & GINNORIES COMBINED.

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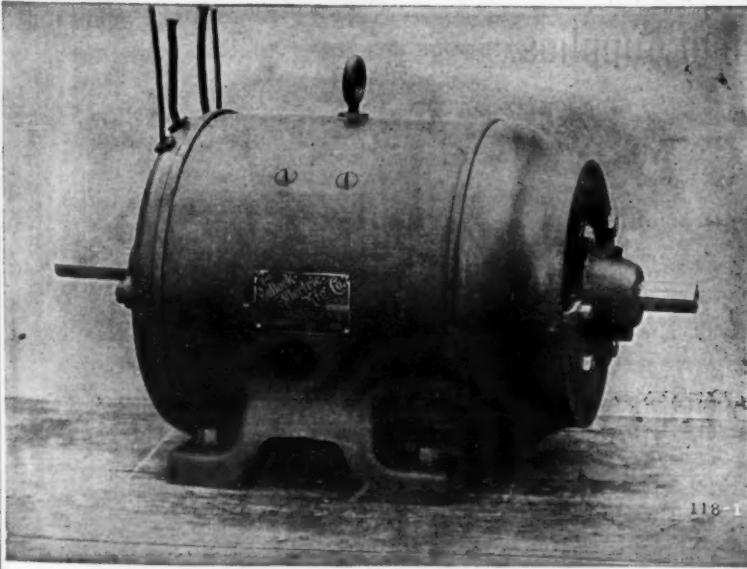
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BULLOCK DUST PROOF MOTOR.

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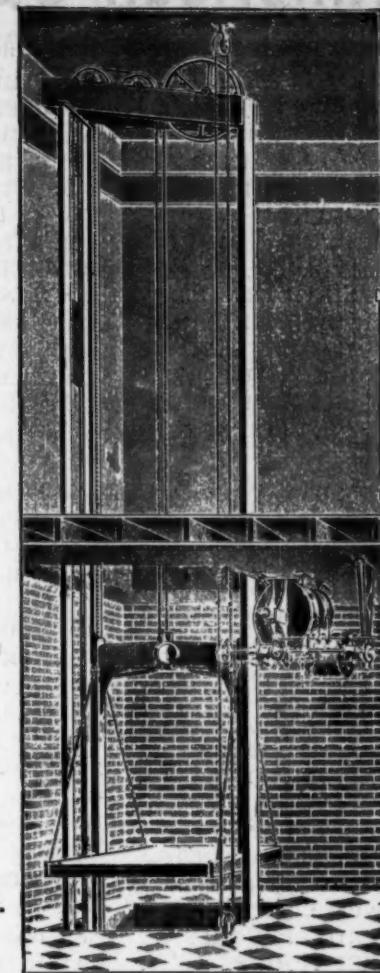


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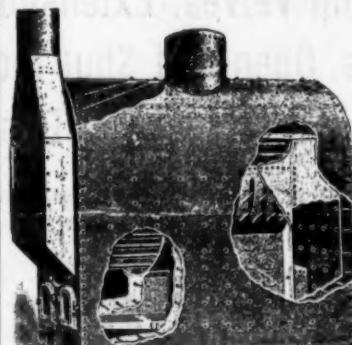
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Saves its Cost in Fuel Bills

EVERY TWO YEARS.



*Is adapted for all uses
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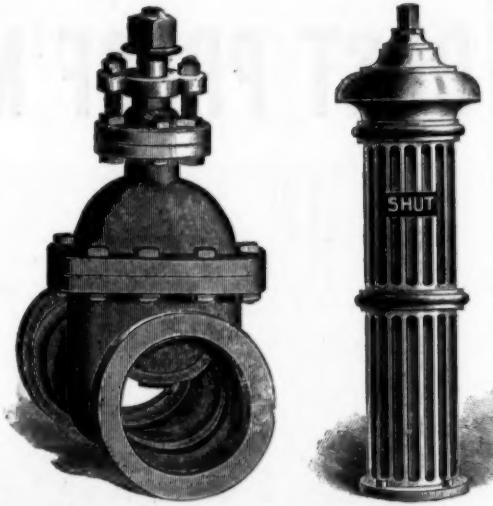
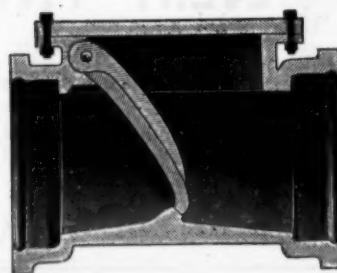
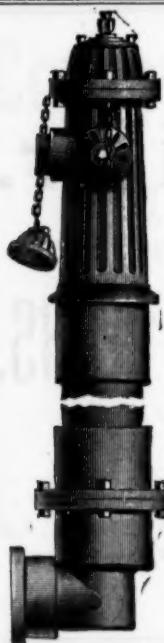
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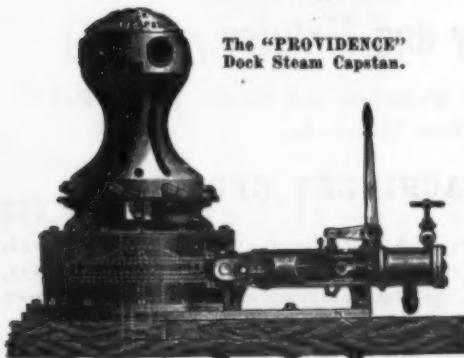
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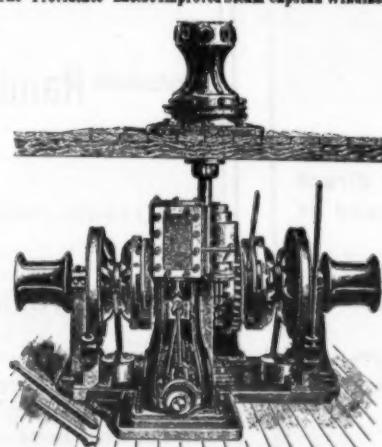
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Steam, Electric and Hand Windlasses, Capstans, and Winches.
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The "PROVIDENCE"
Deck Steam Capstan.

Chain
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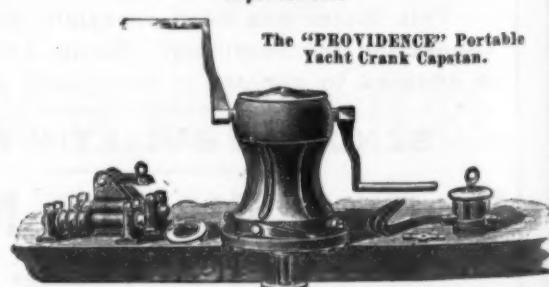
Pat. July 31, 1888; Feb. 17, 1891; and Dec. 8, 1895

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We make this Capstan in either Galvanized Iron or Bronze.

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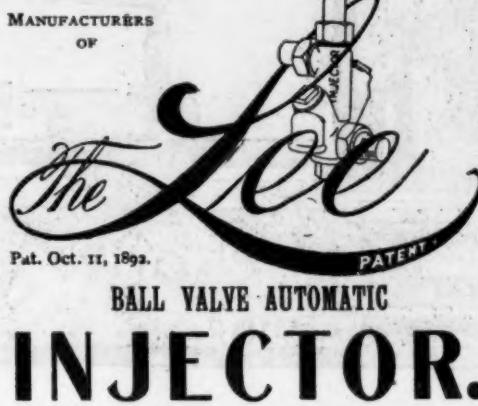
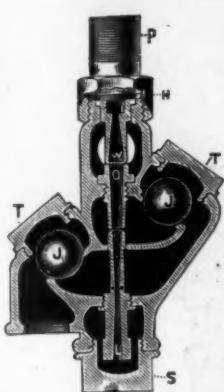
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Working Range.

Start Low, 20 to 22 lbs. steam pressure. Work high, 150 lbs. steam pressure or over. Lift water 20 ft. on 65 to 100 lbs. steam.

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IMPROVED COTTON MILL MACHINERY.

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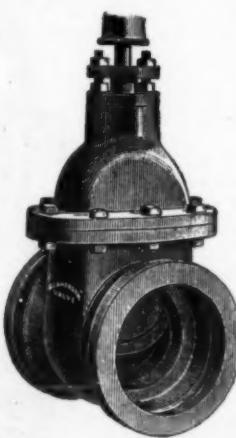
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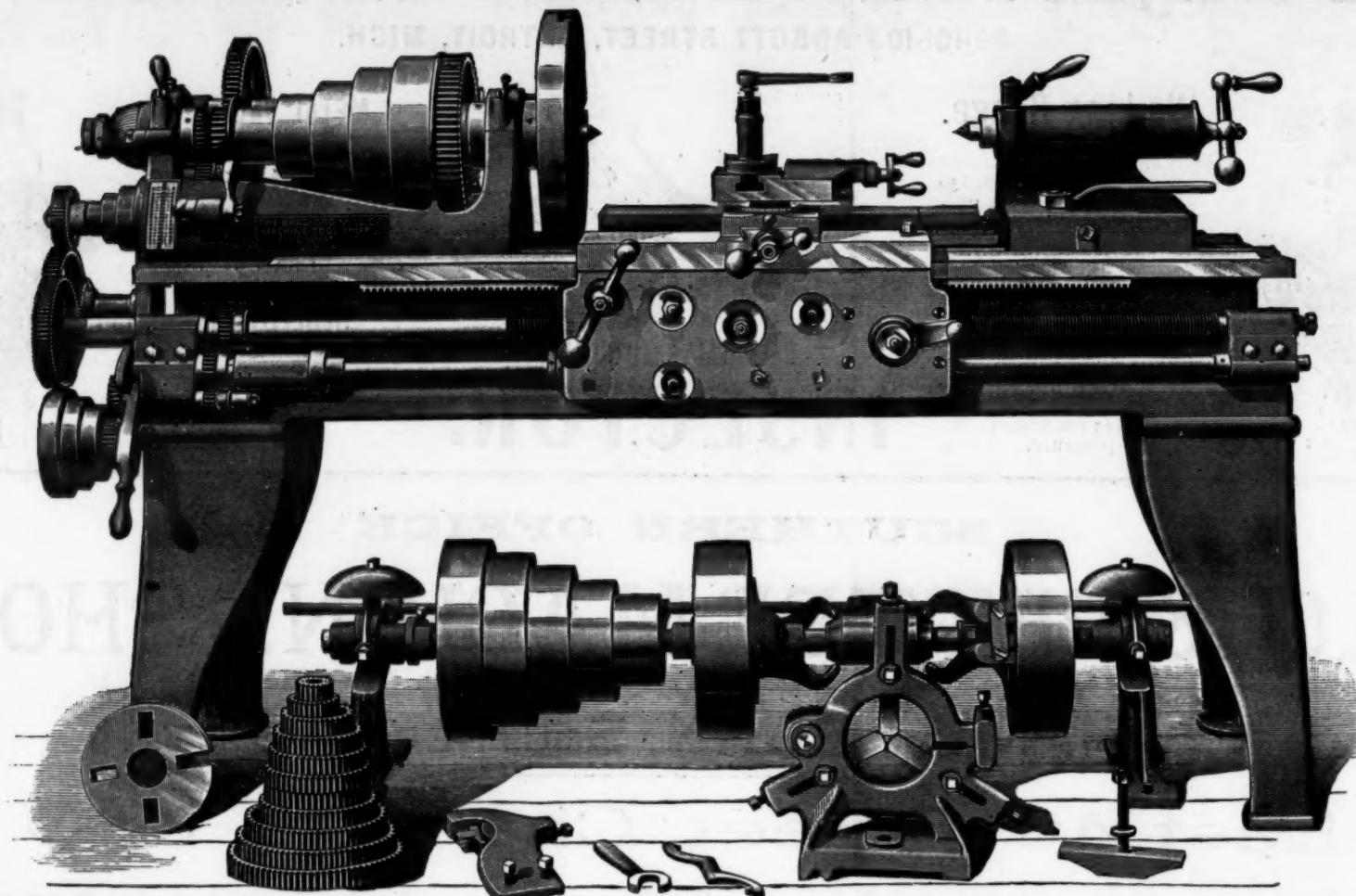
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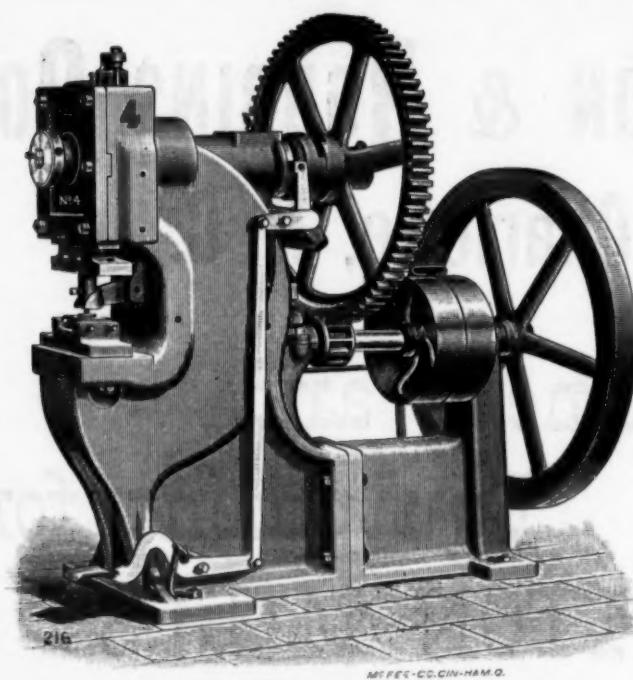


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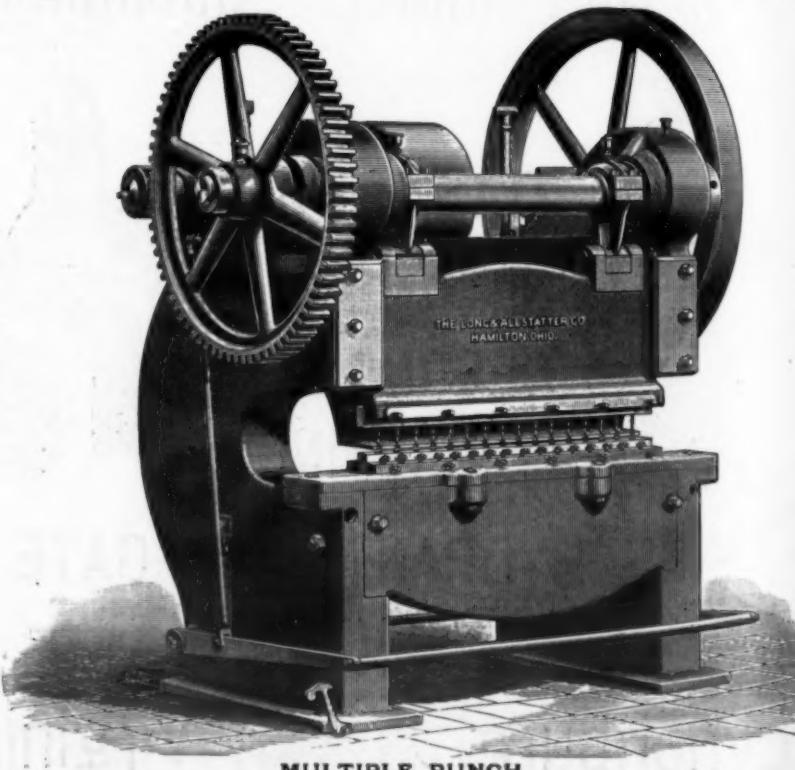
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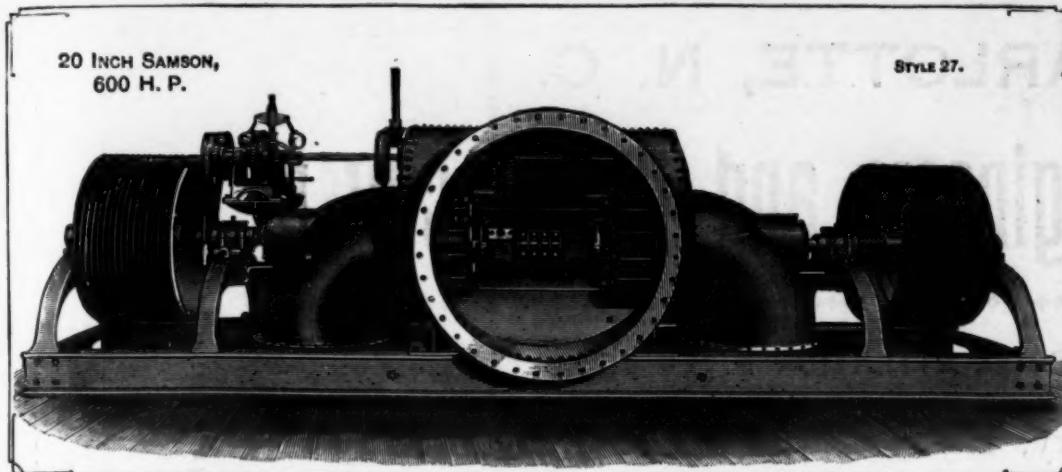
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Shearing Machines,
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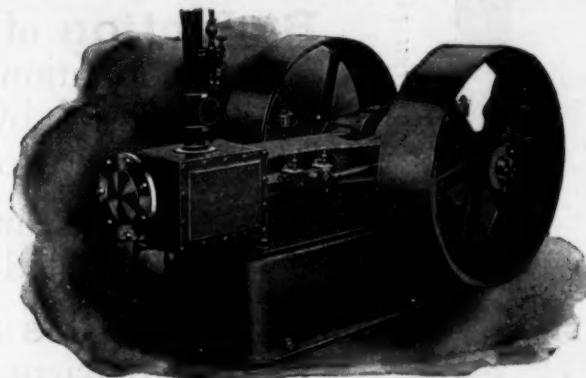
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PORTABLE and

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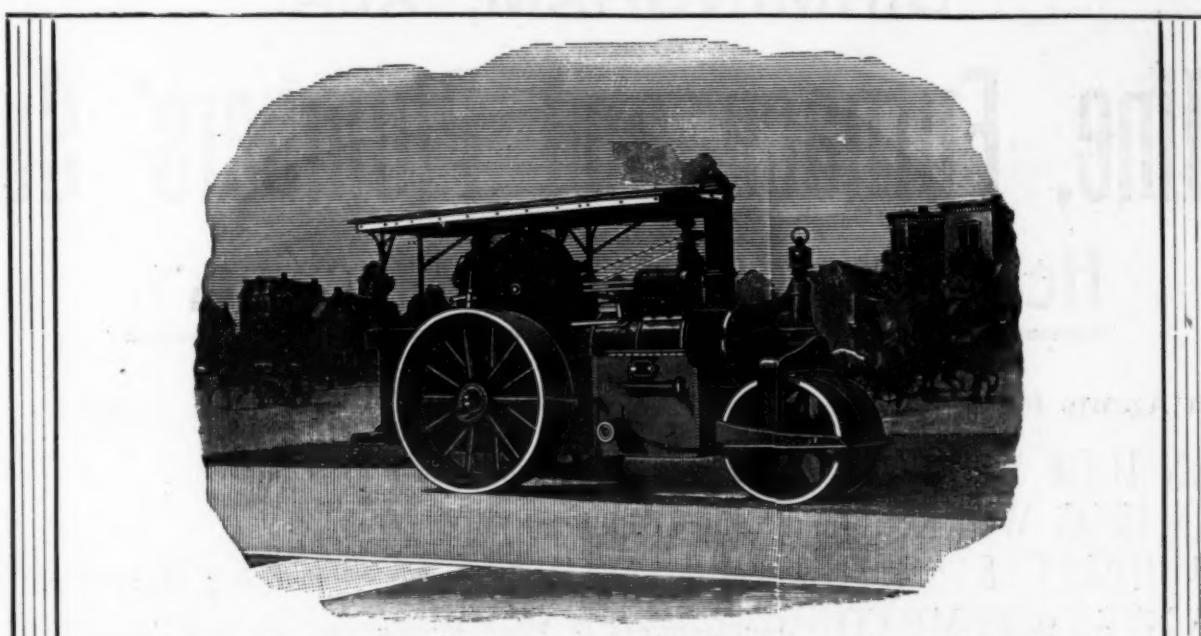
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power required, and send for Engine Pamphlet "F."



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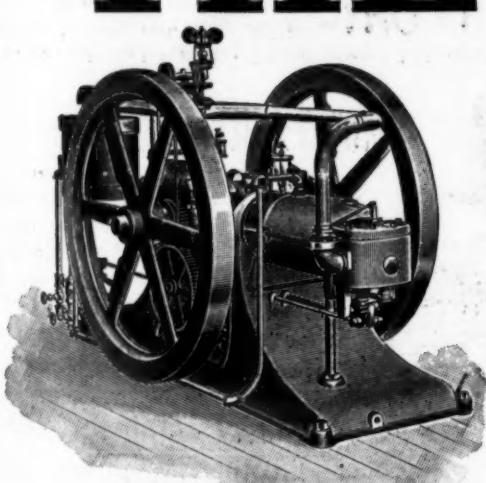
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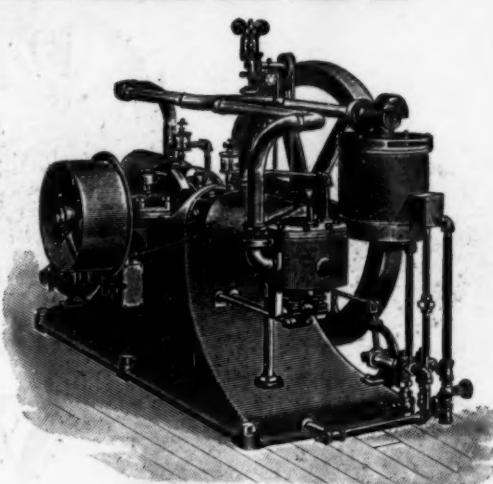
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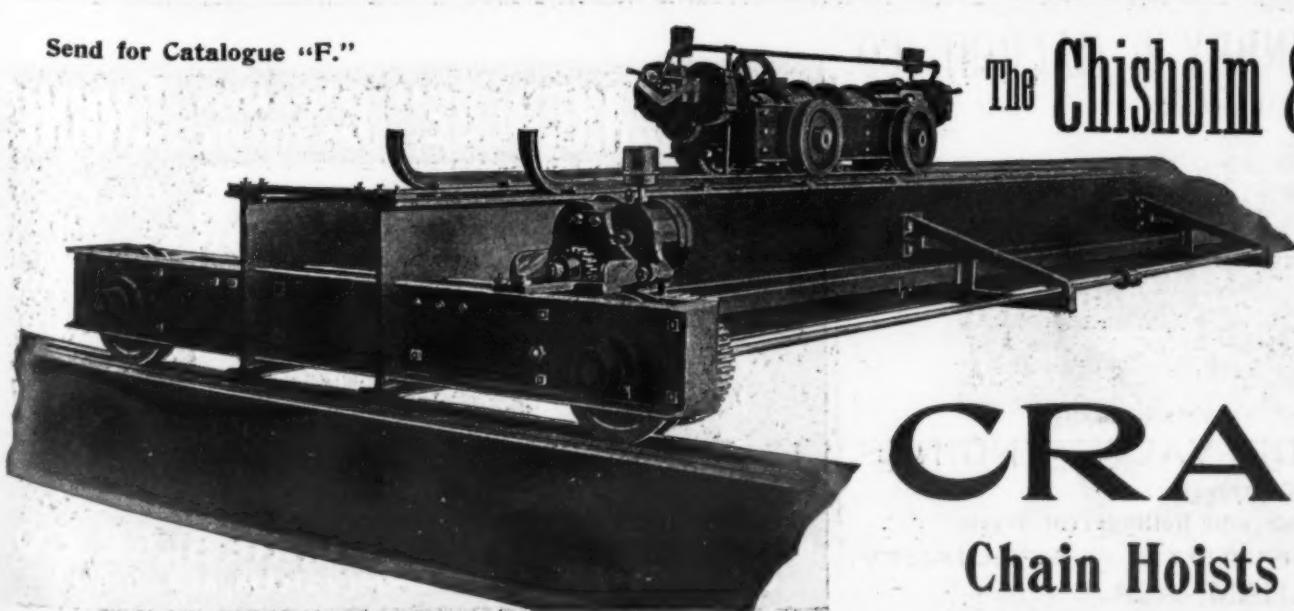


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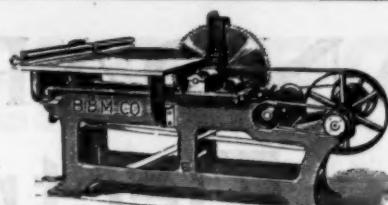
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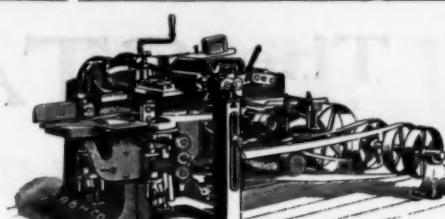
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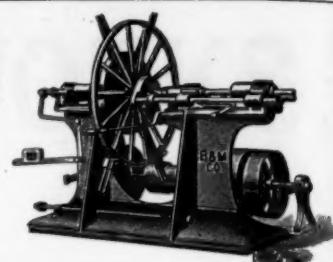
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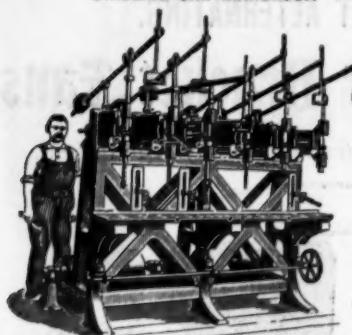
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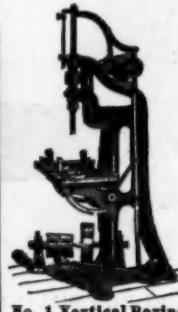


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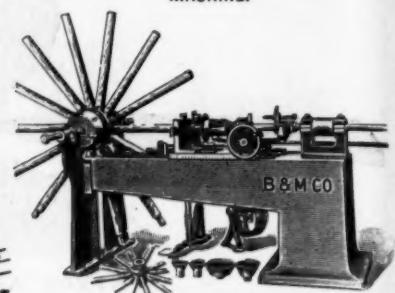


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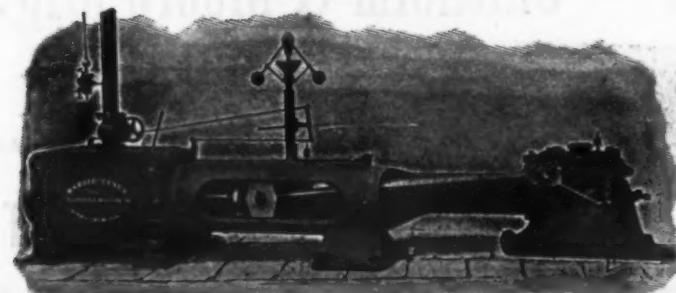
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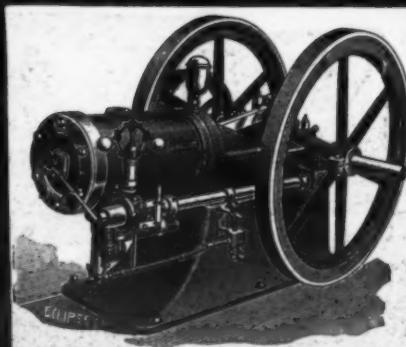
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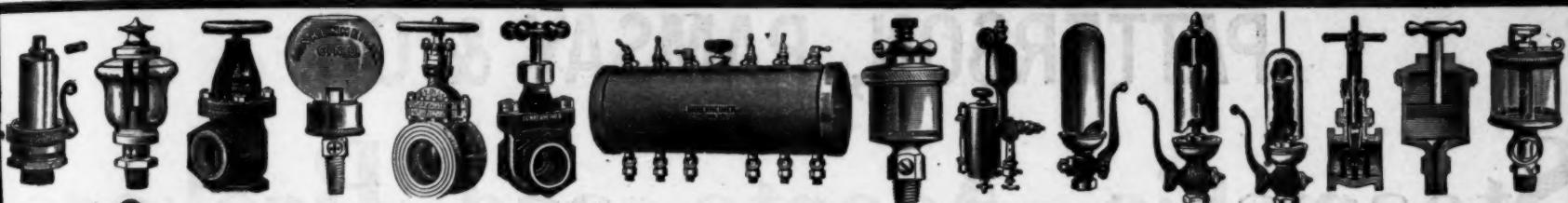
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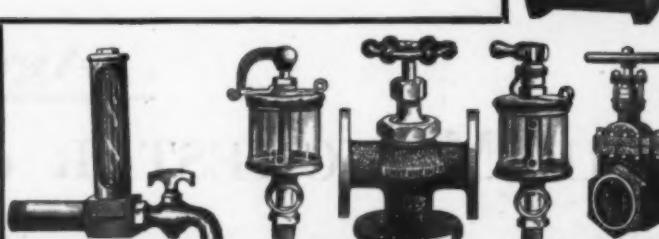
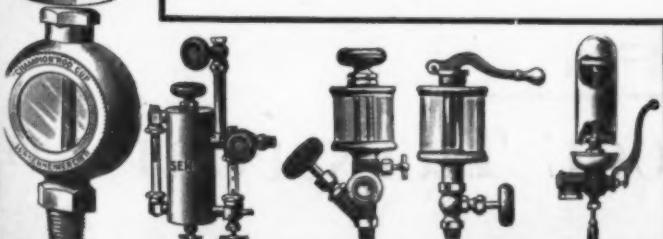
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A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER.

VOL. XXXVI. NO. 21.
WEEKLY.

BALTIMORE, DECEMBER 14, 1899.

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BALTIMORE, DECEMBER 14, 1899.

In a letter to the Manufacturers' Record Mr. Frank G. Bolles of the Bullock Electric Manufacturing Co. of Cincinnati, Ohio, writes:

We are always interested in the editorials of the Manufacturers' Record, and the interest it takes in securing progressive measures for the South in particular and for the country in general.

A Hint from England.

Referring in semi-jocular vein to the ambition of the South to become the manufacturer of all the cotton that grows, the *Textile Mercury* of Manchester, England, says:

It is never wise to despise the day of small things, and the future may have more things to store in favor of this idea than anyone yet dreams of, even those in the Southern States. We do not know what the migrations or transmigrations of industry yet will be; they may favor this conception very greatly, or they may not. On the other hand, various important possibilities are opening up before the eyes of the poor played-out Britishers, which may in the future work to their advantage, even of those not in the cotton trade. We have seen what Egypt can do in the way of cotton-growing, and now that the potentialities of the Soudan are likely, through the defeat and death of the Khalifa, to become immediately accessible, it may be that we shall find some good cotton-growing fields on the upper reaches of the Nile and its tributaries, or around the great lakes. Leaving India out of consideration as not likely to expand her capacity very greatly, we have still the vast plains of Australia to explore, with the probability that many large areas may be discovered therein in which cotton may prove about the most suitable crop that could be laid down upon them. We know that Australia has emancipated the world from dependence upon the old lands of the Northern Hemisphere for wool, and it may do something in the same direction in regard to cotton. But like the using up of the productions of the cotton fields of the South in mills located on them, all these are dreams which are almost, if not quite, as likely to come true as that one is. It is hardly likely, however, that any of them will be realized in the days of those now living; therefore we may leave them as not being within the scope of practical consideration.

This contention of the *Mercury* may satisfy the British manufacturers. It ought to inspire the South with the determination not only to advance methods whereby cotton may be raised and handled at a minimum price while maintaining its quality, not only to hasten the utilization of the maximum of the crop in Southern mills, but also to further measures whereby the output of those mills may win and hold markets against the competition of Egyptian, Australian or other cottons.

Co-operating with Railroads.

The progressive men of Arkansas are thoroughly alive to the necessity for railroads in that State and the benefits to be derived from their construction. In the midst of the vigorous efforts to complete the bonus of \$100,000 for the construction of the Arkansas Northern Railroad the Board of Trade of Little Rock has celebrated the completion of the Choctaw & Memphis Railroad to that city by entertaining at a banquet officials of the company and others. Among the notable speeches that were made was that of Col. S. W. Fordyce, president of the Little Rock & Hot Springs Western Railroad. He presented a number of interesting facts about the commercial and industrial growth of Little Rock, its opportunities for expansion in that direction as it is brought in closer touch by the railroads with the rich natural resources of the State, and said:

The opportunity is yours and the appointed time is now. Other lines of railway are struggling to come to you and are asking you to come to them. You have done well in aiding the roads already here, and they have and will do well by you. Your interests lie with them and theirs with you. The interests are interdependent. One cannot prosper at the expense of the other. You must go forward, hand in hand. They can and will help you to build here a great city. You can and will help them to reimburse their stockholders for the confidence they have shown and the money they have invested in these properties.

The same point as to co-operation was brought out by Mr. Francis I. Gowen of the Choctaw, Oklahoma & Gulf Railroad Co., who stated that the opportunity offered by the building of the Choctaw & Memphis is not to be equalled in richness of resources by any other part of the country. He said that the company had built the road, believing that it would meet the co-operation of the people of Arkansas, and that it could prosper only as the people prosper. The opportunity given at the banquet for the officials and business men to get together ought to bring forth valuable fruit in strengthening the purpose of Arkansas to welcome and foster not only the capital needed for railroad construction, but for industrial development, which should accompany it. Capital from outside the State will certainly follow in its direction as capital within the State leads the way.

Charleston and Cuba.

Among the first cities of the South to take steps, as a result of the late war, for advancing their commercial relations with the West Indies was Charleston. Representatives of its merchants paid a visit to the islands and convinced their fellows that ample transportation facilities were necessary for the cultivation by Charleston of the Cuban and Porto Rican trade. Their visit was made several months ago, and the result of their observations has been reinforced by a statement from Mr. L. A. Emerson of the Southern Railway that he cannot see how his

company may expect to handle through Charleston freight for Cuba unless the business men of Charleston encourage the formation of a direct sail or steamer line. Discussing this question the *News and Courier* says:

We believe that some of the Charleston merchants have been selling goods in Cuba and Porto Rico since the visit of our commercial representatives to those islands last year, but these goods have had to be shipped from other ports, and we cannot hope for any very large increase in the volume of our West Indian trade until we have provided a line of steamships or a line of sailing vessels from Charleston to West Indian ports. We believe that there is a good opportunity here for the profitable investment of capital; we are sure that there is a great deal of money to be made by Charleston merchants in the West Indies.

It is apparent that Charleston merchants cannot act too soon in this matter if their city is to share the benefits of the increasing commerce in the West Indies. Ports of Florida, Alabama, Louisiana and Texas are exerting themselves in that direction with a reasonable degree of success. There has been considerable debate about the future of Charleston's trade, in view of the decline in cotton receipts in the early part of the present season. With Cuba and Porto Rico requiring other goods beside cotton from this country, it would seem to be the part of wisdom for Charleston business men to insure a movement of those goods through their port and thus find compensation for a possible loss in the exports of cotton.

To Win Chinese Trade.

In discussing the prospects for the enlargement of American trade with China, Mr. Wu Ting-fang, the Chinese minister to the United States, has made a number of practical suggestions. He said that there is a demand in his country for pretty nearly everything manufactured in the United States, but that the essentials are cheapness and good quality of the goods, fair dealing with Chinese merchants, who are notoriously honest, though extremely shrewd, and the adaptation of goods to the special demands of the Chinese. He referred to the matter of shirtings as an illustration of what American ingenuity may accomplish in dealing with the Chinese, and said:

Until within the last few years our people made all the material for their own shirts. But the Americans, thanks to their cleverness in manufacturing, were able to send to us shirtstuffs superior to ours and purchasable at a less price. Consequently, these goods have crowded our own out of the market, and today nearly every man in China wears a shirt that was woven in the United States. Not only the well-to-do, but the poor also wear Yankee shirtings, and no matter how far you travel into the interior, you will see the natives, who never beheld a foreigner perhaps, clad in American shirts. It is an honest article of merchandise sold at a reasonable cost.

The advice of Minister Wu is timely. It is an expression of the friendliness of the Chinese for this country and of their readiness to meet our manufacturers and merchants half-way as the opportunities for advancing our trade

interests there increase. At the same time it emphasizes the fact, already recognized by observers of Chinese character and methods, that all of the friendliness and all of the readiness to buy American goods will be as naught if the goods are not suitable, or if strictest fairness of dealing is not observed. It may be well to remember that China is not the only foreign country to which the suggestions apply.

Labor for Mills.

Before he came South Mr. George H. Peckham, manager of the Walhalla Cotton Mills, was connected with a mill in Massachusetts. In discussing, according to the *Anderson (S. C.) Intelligencer*, the outlook for the manufacture of fine cotton goods in the South, he said:

The objection most frequently urged by investors is that your climatic conditions are unsuited, and there is also an absence of skilled labor. There never was a greater mistaken idea, for our Southern atmosphere is as moist as is necessary, and, regarding labor, I would much prefer raw mountain hoosier labor to some of the labor employed in Northern mills.

He instanced the employment by a Northern mill of 100 Poles, who had to be taught English before they knew anything. This statement, from one who evidently knows what he is talking about, should encourage men who have hesitated to enlarge their cotton-manufacturing operations.

There is no danger that the supply of mills for the manufacture of plainer goods will be exhausted. Under the spur of practical talks by Mr. D. A. Tompkins of Charlotte, N. C., and Mr. H. H. Hargrove of Shreveport, La., the interest in cotton-mill building has extended beyond the Piedmont region of the South into the very heart of the Mississippi valley, while as far in the Southwest as Texas a movement is being pushed for the organization of cotton mills by the cotton-growers themselves. These are all indications of the strength which will come to the South as it approaches nearer and nearer to the point of manufacturing all the cotton it grows. There is little danger that the supply of labor will be exhausted, or that there will be too many mills, especially if greater diversification of products is adopted.

With the advance of a measure in the Georgia legislature authorizing the establishment of bonded warehouses, and the recommendation by the North Carolina branch of the Cotton Planters' Association that the cotton-growers consider favorably the plan of building such warehouses, this movement, which is destined, if generally adopted, to be of an immense benefit to the cotton planters, is progressing.

Virginia legislators who desire their State's industrial progress should be slow in attempting to settle by law the problem of industrial combination, hardly comprehended as yet by men who view it from the purely economic standpoint.

THE SEABOARD CONSOLIDATION.

Views of Mr. E. J. D. Cross on the Legal Situation.

In connection with the plan to consolidate the Seaboard Air Line, the Florida Central & Peninsular and the Georgia & Alabama railroads, it has been reported that opposition would be offered by Thos. F. Ryan, one of the stockholders of the Seaboard & Roanoke road.

Hon. E. J. D. Cross of Cowen, Cross & Bond of Baltimore, counsel of the Baltimore & Ohio Railroad, and who have been legally associated with the plans for the consolidation of the Seaboard system, made the following statement to a representative of the Manufacturers' Record:

"There is no possibility of preventing the stockholders of these roads from effecting a consolidation as desired. People who own property have the right to do what they please with it if they do it in a legitimate manner, and the stockholders are simply carrying out plans for the benefit of what they own. The fact that some one owns a few shares in the Seaboard & Roanoke road, or any other, and is opposed to the plans, makes no difference whatever. I believe that twenty-one shares of stock were voted in Mr. Ryan's name at the recent meeting of the Raleigh & Gaston Railroad out of a total of 15,000 shares and a clear majority outside of that held by the Seaboard & Roanoke road. Neither he nor anyone else can prevent a plan favored by those who practically own the several lines from being carried out."

The pre-eminent position of Cowen, Cross & Bond in the legal world, and the success of Mr. Cowen as receiver, reorganizer and president of the Baltimore & Ohio Railroad, give emphasis to their opinion on this subject.

THE SOUTHERN PROSPECT.

United States Senator Sullivan on His Section's Opportunities and Duties.

United States Senator W. V. Sullivan of Mississippi sets forth as follows for the Manufacturers' Record the prospects of the South and the part it is to play in the country's development:

"The industrial outlook for the South at present is especially encouraging.

"More spindles, more looms, more blast furnaces, more factories of every kind have come in the past twelve months than ever before, and this is but the beginning of a great movement of the manufacturing interests from the Northeast to the South.

"Nature has given us an equable climate; employees can work outdoor in the South without an overcoat the year round, and living is cheap and strikes are almost unknown.

"The iron and coal fields lie together.

"The cotton fields should furnish the sites for the loom, as they will in the future do.

"I do not stop here with the advantage that nature has given the South; the fact is the war which came without our wish with Spain, inaugurated by Spain, when the Spaniards blew up the battleship Maine and murdered our brave sailors, resulted in the seizure and present ownership by the United States of many islands of the sea. Porto Rico, rich in

its varied productions, is ours; Cuba, almost within speaking distance of our shore, is practically ours, and by a vote of her people at no distant day will be annexed to the United States. Mr. Jefferson many years ago said that the United States ought to own Cuba, Porto Rico and Jamaica.

"The Philippine Islands, with their millions of people, are ours. Those islands are rich not only in mahogany and fine wood, but in gold, silver and copper, and a very small proportion of the inhabitants are in revolt against American authority, and a few brief weeks will end the insurrection.

"I regret the war with the Filipinos, but they brought that war on by firing upon us with the very guns and ammunition we had given them to achieve their independence.

"This great nation will do what is just with them when they lay down their arms and frankly and honestly submit to our terms.

"The opportunity of the South for commercial expansion today is greater than it has ever been before, and, in my judgment, the Southern man who does not seize and use this opportunity is blind indeed.

"We need the Nicaragua canal cut. We should own it; then our ships can take the fruit of the loom from the cotton fields of the South and the iron and coal through the canal to all of the South American countries, all of the Pacific coast lines of Mexico, and to Central America. The Philippines, China and Japan, with her thousands of millions of people, will also be our market, at an expense far less than England or any other country can carry the fabrics and products to those markets. We can emancipate ourselves from the single market of Liverpool for our cotton.

"We can have two markets instead of one. We can have a better and competing market for our cotton, coal and iron and all of the manufactured products. The cutting of the canal lessens the distance from the Atlantic seaboard and the Southern coast to these markets thousands of miles, and insures a commercial prosperity to the South that has not been dreamed of in many years. We might permit the Filipinos under our guidance and direction to make their own laws, elect their own officers; pay us back every cent we are out; give us the benefit of a discriminating tariff in our favor; free trade and open market with them, and an open sea to China and Japan. The climate of those countries is such as to necessitate the cooler, lighter fabrics made of cotton, and thus it is apparent that our section above every other one is interested in the upbuilding of our commercial traffic in the Orient, as well as along the Pacific coast line of Mexico, Central and South America. We should look matters in the face, be honest with ourselves, take advantage of the situation, and at the same time do no injury to the Filipinos nor the Cubans.

"I predict an era of commercial prosperity within the next five years unequaled in the United States if we wisely improve the present and pressing opportunities."

The Huntsville Daily Post is the title of the new afternoon daily established at Huntsville, Ala., with Mr. Ben P. Hunt, editor. The paper is full of push and enterprise, and will undoubtedly be an important factor in the development of its community now upon such a satisfactory basis.

It is announced that the work of clearing the channel of the Ocmulgee river up to the Macon wharves will shortly begin.

ELECTRICITY IN AMERICA.

A German Expert Tells of Its Commercial Development.

[Special Cor. Manufacturers' Record.]
Berlin, Germany, November 20.

Commerciencrat Loewe, head of the great firm of Ludwig Loewe & Co., which is one of the greatest manufacturers of electrical machinery in Germany, has just returned to Berlin, and has given in an interview his impressions of the American electrical industry. In regard to the great boom in the United States, Herr Loewe says that there are no signs that this great movement in American business life has passed high-water mark.

As a manufacturer of electrical machinery, Loewe naturally devoted most of his attention to the electrical branch in the United States, and in doing so he was trying to decide for himself whether the opinion so widely held in Germany, that the electrical industry has already reached the summit of its development, is correct or not. The result of his observations was that, in the practical application of electricity in all branches of manufacturing as a substitute for human power, the American electricians are far in the lead of those of Europe—so far as to be simply astonishing. He noticed this especially at the Pencoyd Works, the Carnegie establishments and the Illinois Steel Co.'s mills. In these branches of manufacturing electricity offers great scope for development, since it can be adjusted to the requirements of each particular case as no other form of power can. Hand in hand with this side of the development goes the increased capacity of production, together with the efforts of the electrical engineers to avail themselves of the powers of nature for the production of electricity for industrial purposes.

The most astonishing thing that Loewe found in this direction was the great electrical plant at Niagara Falls. He said: "There one sees the application of electricity to factory uses to an extent that must call forth admiration for the creative powers of the human mind. Already 100,000 horse-power is drawn from the falls, and on both sides of the river a regular factory city has sprung up, in which electricity is generated not only for lighting purposes, but also for the carbide, cellulose, paper, carbon and other factories in the vicinity, and especially for transmission to Buffalo for light and power purposes. And yet the utilization of the power of the falls is only in the first stage of its development. The total power that the falls can supply is estimated at 2,000,000 horse-power.

A powerful support of the electrical industry in America is found in the electrical tramways and railways, and in these two lines our European conditions are far behind the development in the United States. The central station of the Metropolitan Railway in New York makes, even upon an expert, a powerful impression. There are as yet three machines in operation, each of 15,000 horse-power, and two more machines of the same capacity will be set up soon, so that there will then be 75,000 horse-power in operation here. The current is generated at 6600 volts, and is reduced to 500 volts for use on the street railways. A similar state of things exists in other large American cities. The capacity of the street-railway systems is so extraordinary that they make it possible to dispense with all other forms of transportation for persons. The cars move not only at short intervals, but with such speed that all need for omnibuses and cabs has disappeared in such great centers as New York, Boston, Philadelphia, etc. It is a fact of great importance for the street railways,

however, that all the municipal governments show the greatest possible consideration for the companies, and without exception they grant 99-year charters. Also on the part of the police authorities the street cars are allowed the greatest possible freedom of movement. Rapid speed is allowed, and the cars may take on as many passengers as they can possibly hold, and there is no such thing as a definite schedule time. Corresponding to the necessities of the case, the cars are built much wider than with us. With very few exceptions the overhead trolley system is used."

The use of electricity on standard-gauge railroads was found by Loewe to be not less highly developed than on the street railways. He traveled over several of these railroads which were built by the General Electric Co., and which have been working unexceptionally for more than a year. "The speed hitherto reached has been fifty miles per hour. A higher speed could be easily made, but it has not been decided to run faster because the roads were constructed for steam traction, and cars drawn by steam are still running on them. With the financial returns from the electrical system the street railway companies and the companies operating standard-gauge roads are fully satisfied."

From his own observations and from the views expressed to him by the most prominent men in the American electrical industry, Loewe received the impression that the most extended application of electricity in manufacturing establishments is not only to be recommended as advantageous, but as absolutely necessary for all manufacturers that aim to keep abreast of the times. "The German manufacturers especially must bear this in mind if they do not wish to get left in the struggle with American competition. That competition indeed, owing to the favorable conditions now prevailing for the sale of manufactured goods in America itself, is little felt; but later, when the boom in America has somewhat subsided, it may become threatening for German industry. The more this fact is recognized the more favorable will the chances for the electrical industry in Germany become." WILLIAM C. DREHER.

FURNACE STOCKS SMALL.

Evidence of Continuous Demand for Iron at Birmingham.

[Special Cor. Manufacturers' Record.]
Birmingham, Ala., December 12.

In the iron market the past week prices were somewhat easier, and \$17.50, which has heretofore been quoted as inside price for No. 2 foundry, was the generally accepted price for that grade. The trade was confined to the smaller buyers, there being no transaction of magnitude. If eagerness to hasten deliveries be any indication of the run-down condition of stocks in hands of consumers, they must be mighty low, for the demands for shipments on which delivery has matured are importunate. Furnace interests without the advantages of a railroad center are considerably behind on their deliveries yet. Right here, out of seventeen furnaces inspected last week, the total stock reported in yards was about 1700 tons. No stronger evidence could be given of a continuous good demand for iron. Just in the season when no one anticipates business some report volume of sale equal to output, while all report sales of all they can spare. It is announced that the Woodstock furnaces at Anniston and their holdings of ore and coal properties will be consolidated with other interests and a new iron company be incorporated to add to the importance of this section.

It will be underwritten in the Eastern financial centers.

The advent of new industries still continues, the latest being a steel-castings works involving an investment of \$150,000. Its location will be at Ensley City, about equidistant between the steel mill and the furnace plant. The Tennessee Coal, Iron & Railroad Co. is fathering the enterprise, and will have the largest interest. All the capital required was obtained here. Orders for the traveling cranes and other heavy parts of the machinery on the delivery of which delay may be expected have gone in, and the erection of this plant will be pushed without delay. A plate mill will be built. Following this will be a rail mill, of which some long-headed business men largely interested in the district have been thinking for some time past.

The steel mill sold last week, for delivery extending all through 1900, equal delivery each month, 6000 tons of billets at a price higher than any preceding sales. Its significance is in the fact that the buyer evidently believes in the maintenance of prices. Everything indicates that with the turn of the year there will be renewed activity in the iron market, and that it will be a broadening and a hardening market.

J. M. K.

Eastern Iron Markets.

[Special Cor. Manufacturers' Record.]
Philadelphia, Pa., December 13.

We are now too close to the holidays to expect anything important in a business way. A comparatively small amount of iron and steel has been sold in this market during the past week. All brokers, however, say that everything is light, and that the contracts are as encouraging as ever; in fact, the representatives of iron and steel mills are not making any endeavors to sell materials and have nothing to sell. Pig-iron is very strong, but not active. No. 1 foundry is still \$25 to \$25.50; gray forge is \$20 to \$21; Bessemer, basic, low-phosphorus and foundry irons all stay just where they were a few days ago. It is likely there will be no material changes in pig-iron quotations until after the first of the year, and possibly not even then.

Every mill through Eastern Pennsylvania has its hands full, so to speak. It has transpired within twenty-four hours that there are parties in this market quietly trying to arrange for deliveries of structural material for the first three or four months of next year. They want some of the material right away. There is also quite an urgent inquiry today for boiler plate for quick delivery, and these quick-delivery inquiries indicate that the market is much stronger than would otherwise be supposed. There is nothing new whatever in steel rails, although it is known there are inquiries from abroad for 10,000 to 12,000 tons; quotations are \$37. The same condition continues as regards old materials. Old iron rails are in extraordinary demand, but the supply seems to be cut off. Holders refuse to meet the terms offered by buyers. Steel rails are also harder to obtain. All kinds of scrap are practically exhausted, and makers of scrap are being solicited by buyers for all they can promise. There is nothing new in tinplate or the metals. All our hardware managers report excellent prospects for the winter and spring, and everybody is making preparations to run full time and start in the spring with full stocks.

Notes from Bristol.

[Special Cor. Manufacturers' Record.]
Bristol, Tenn.-Va., December 12.

The Virginia Iron, Coal & Coke Co. is working 1500 hands at its Toms Creek coal mines and coke ovens, and still wants

more laborers. Mechanics of every description are needed—miners, brick masons, carpenters, coke-oven operators, ore-washer manipulators, well-diggers and borers; in fact, any and almost every kind of labor.

The Crane furnace at Radford, owned by the Virginia Iron, Coal & Coke Co., was blown in last week. The Big Stone Gap furnace, owned by the Union Steel & Chain Co., will blow in December 15.

Enlarging Its Operations.

The Tennessee Coal, Iron & Railroad Co. has made another advance movement in the decision of the board of directors at a meeting held last week to build at Ensley a large foundry for the manufacture of steel castings. In April last this company commenced to open coal mines Nos. 8, 9 and 10, and a new mine at No. 3 Pratt, and the condition of the work on these mines is such as to indicate an increased output of not less than 2500 tons per day within the next sixty days. The company is now building 310 coke ovens—110 at No. 4, 100 at No. 3 and 100 at No. 5 mine, and has just completed seventy-five at Jasper for the use of the Sheffield furnaces, giving the company a total at that point of 280 ovens. All of these ovens are beehive. The battery at No. 4 mine is finished, and the work of firing the ovens has commenced. Those at No. 3 and No. 5 are rapidly approaching completion.

MINES OF ASIA MINOR.

Developments of Them Already Made.

In a letter to the Manufacturers' Record Mr. Alexandre D. Kalghakis of Smyrna, Asia Minor, writes as follows:

"The wealth of our country in mines of various kinds is conspicuous. As you know by a preceding letter, a dozen of the larger mines, not to mention the smaller ones, are being continually worked, and of these the most important are the chrome and emery fields. The emery of our country vies with that of Noxos, and a goodly portion of it is shipped to the United States. We also call your attention to a considerable number of new mines. The copper fields at Dramas have this year given most excellent results, and during that period there have been extracted from them 7000 tons of mineral, which, transported by rail to the port of Salonica, was all shipped to America. Another mine of copper, near Guinomzina, is being worked by an English company. At the same time other important mines have just been discovered; those of Kicussech contain copper; those of Badoma are rich in copper, argentiferous lead and antimony, and one, near Bonk, of argentiferous lead, the working of which has been ceded by imperial trade to his excellency the minister of marine. All these mines are found in close proximity to the steam railway, with terminals at the ports of Salonica and Dedeagato.

"The people to whom were ceded by imperial trade the rights to construct and operate a system of electric tramways between Smyrna, Chalcabonnar, Tarsa and Cassaba have succeeded in forming a corporation with German and Belgian capital, and are about to begin work. It is mooted that the operation of the line should be able to return 12 per cent. interest."

The Petersburg (Va.) Iron Works Co. has closed a contract with the government for 200 tons of anchors and ballast-balls for the United States lighthouse department at New York and for ten cars of twelve-inch shells for the United States powder magazine at Picatinny, N. J.

LOUISIANA'S ROCK SALT.

Features of the Deposits on the Gulf Coast.

In a paper presented at the last annual meeting of the American Institute of Mining Engineers Mr. A. F. Lucas set forth some interesting statements about the rock-salt industry of Louisiana. Up to the present time deposits of rock salt have been discovered in a series of so-called "islands" on the Gulf coast of Louisiana, namely, Jefferson Island, Petite Anse, Grand Cote, Cote Blanche and Belle Isle. The salt was discovered at Petite Anse in 1862, and in 1879 the property was leased by a company of Charleston and St. Louis capitalists, which finally merged into the New Iberia Salt Co. This mine had no rival in Louisiana until 1896, when Joseph Jefferson, the veteran American actor, discovered salt upon his island seven miles northwest of Petite Anse. Results of further explorations on these "islands" are described as follows by Mr. Lucas:

"The general results of investigations at Jefferson, Petite Anse, Grand Cote and Belle Isle, respectively, have been to demonstrate the existence of relatively small and isolated beds of the best rock salt thus far discovered on this continent, all of which are accessible by shafts for mining. The term 'small' applies to their horizontal area only. What they lack in this respect, as compared with other known deposits, is overwhelmingly made up in their depth. Repeated attempts have been made, without success, to reach this lower limit by deep borings. In one instance a hole was bored by the author on Jefferson island to the depth of 2100 feet without passing through the salt and without finding in it any intercalated strata of foreign material to mar its purity. This is the more remarkable in view of the fact that all other rock-salt beds known in the United States lie 1000 feet or more below the surface and show layers of salt from two to eighteen feet thick, alternating with or bounded by limestone, sandstone, gypsum, shale, etc., which make the immediate product of mining more or less impure.

"The advantages of the Louisiana deposits consist, therefore, in their nearness to the surface, their exceptional purity (numerous analyses, taken at random, show an average of from 98 to 99 per cent. of sodium chloride), and the practicability of mining them as simple underground quarries, without fear of the incidental extraction of foreign materials, to the injury of the product.

"These advantages are to some extent counterbalanced by the presence of the overlying drift sand, which necessitates expensive water-tight shafts to reach the deposit, and renders expedient, for the security of the mine workings, to begin by sinking at least 200 or 300 feet in the deposit in order to obtain, in the absence of other solid-rock roof, a sufficient thickness of the salt itself.

"Another present disadvantage may be considered to lie in the circumstance that the Louisiana salt-mining industry is dependent upon a single railroad line for transportation to its principal market in the Northwest.

"The depth at which salt is reached varies in the different deposits. At Petite Anse it seems to be smaller than elsewhere. On Jefferson island it varies from ninety to 345 feet, and similar variations are shown at Grand Cote and Belle Isle.

"It can scarcely be doubted that at an unknown depth this group of deposits is connected with a continuous stratum of salt, which may possibly extend as far as Saline, in the northwestern part of Texas,

where brine is pumped and some evaporating plants are located.

"Present Methods of Working.—The mines are operated by the chamber-and-pillar system, and the salt is excavated by undercutting. When the shaft has reached a depth of, say, 250 feet or more below the apex of the deposit, stations are opened and an undercut seven feet high, with a face of seventy-five feet, is commenced. When this has advanced, say, 200 or 300 feet, the roof is attacked and blasted down to the height of about twenty feet. After the removal of the salt thus won there remains a chamber, say, seventy-five feet wide by 200 feet long, and twenty feet high, in which the roof is again broken down to the final height of seventy feet in the center and sixty feet at the pillars on either side, leaving a natural arch of rock salt, which has proved capable of resisting any overlying weight, as well as preventing leakage of surface waters.

"This final excavation is performed with the aid of tripods, made of short ladders, upon which a temporary scaffold is erected for men and machines. A battery of holes ten feet deep is drilled near the brow of the chamber and along its whole face, and charged with low explosives. The ladders and machines are then removed and the salt blasted down. On the pile of this material new scaffolding is erected, and the operation of drilling and blasting is repeated until the desired height of roof is reached. Loose blocks or chips are carefully removed from the final roof, so as to leave a safely solid mass, and the chamber is then abandoned. Every such chamber, 200 feet long by seventy-five feet wide and sixty-five feet in average height, yields about 50,000 tons of salt, mined without the use of a single stick of timbering.

"Pillars sixty feet square are left between chambers. Whenever a given level shall have been worked out on this plan it will only be necessary to sink the shaft another hundred feet and repeat the operations described.

"It need scarcely be said that these great vaulted chambers, with their piers and arches of pure crystalline salt, present, especially when scintillating under the strong illumination of a calcium or electric light, a most impressive appearance, not paralleled by underground views in ordinary mines. They might easily be fancied to have been the subterranean residences of the mastodons, the bones of which are so frequently found in overlying drift.

"The first undercut of salt is well shattered by blasting, and goes to the mill to be ground fine. The first and second roof-blasting furnish pieces of solid rock, which are set aside under sheds to be aerated or weathered before being shipped for 'cattle' purposes. All finer stuff is 'grist,' and as, by reason of the uniform purity of the salt, no sorting or purification is required, every pound of salt mined is a pound sold.

"In a properly-conducted mine two chambers should be always worked simultaneously, since one undercut alone would not supply the coarser grades. While one chamber is being undercut the other, with its roof partly down, equalizes the proportions of the different sizes required for steady operations.

"It is not necessary to describe the crushing and sizing of the product. It is all equally pure, and is subjected only to such operations as will recommend it to the various branches of trade. The coarsest crushed salt is used principally by beef and pork packers; the second and third sizes are largely employed in salting hides, in refrigerating, etc., and there are four

grades of still higher fineness, produced by grinding with emery wheels, screening and blowing, which have their several uses, the finest being table salt.

"Two companies are now engaged in erecting plants for the mining and marketing of salt.

"One of these is the Gulf Company, operating on Belle Isle, and composed of capitalists in Chicago and the Northwest. Its plant is well advanced, and, having been executed with the aid of ample means, embodies, both above and under ground, the best arrangements and devices that can be adopted by a skillful and farsighted management for the production and handling of a large tonnage. A spacious canal has been cut, through which large steamboats can come directly to the great warehouse, so that steamers and barges can be mechanically loaded. As the main shaft is only 500 feet from the warehouse, the facilities for cheaply handling a large output are evidently complete. The shaft, which has three compartments, is now 400 feet deep, or 305 feet in solid and pure rock salt, and the hoisting machinery is of adequately large capacity. The mill is nearly finished, as is likewise a large evaporating plant, to be used in enabling the company (aided by its proximity to New Orleans) to compete with imported evaporated salt. The plant comprises also a barrel factory, saw-mill, large electric plant, barges and a number of steamboats, one of which is larger than any on the Mississippi.

"The other company referred to is erecting a large new plant on Petite Anse. The Avery Salt Mining Co., formed in July, 1898, by the owners of the island, upon the surrender of the lease held by the last operators, Messrs. Myles & Co., has been absorbed by the Retsos Company of New York, which is now operating this interesting property, retaining the name of the Avery Company.

"Messrs. Myles & Co., after surrendering in July, 1898, their lease on Petite Anse, organized the Myles Salt Co. to operate upon Grand Cote island, where they had already begun in April, 1898, the sinking of a shaft. This operation has been hindered by the occurrence of quicksand just above the salt, which has thus far prevented the establishment of the tight 'seal' between the shaft and the salt rock, required to prevent the entrance of surface waters. In order to complete a commercial enterprise, this company will have to build about five miles of railroad across the marshes to Louisa, the present terminal of the Cypremont branch of the Southern Pacific system.

"Jefferson island is not under active development. Mr. Jefferson has decided to leave the property for the present as it is.

"Of all these deposits, Belle Isle is by far the best located, geographically, being adjacent to deep-water transportation, and undoubtedly it will command not only the Gulf coast trade, but may become a serious competitor on the Atlantic coast as well. Belle Isle is located thirty miles from Morgan City, on the Southern Pacific Railway, and about fifty miles from Indian Village, on the Texas Pacific Railway, two strong competing lines. Besides, the Plaquemine locks are being hastened to completion by the government, and a short-cut inlet will soon be made into the Mississippi river, opposite Baton Rouge. From this point barges can be towed to New Orleans, Memphis, St. Louis, Cincinnati, etc. The company proposes to transfer the bulk of its product by means of floating elevators, as practiced in New York, Buffalo, etc. By such means it will not only get the benefit of water transportation, but will be able to make its own transfer on the cars direct to any point in the North or West."

RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

HOW THE SOUTHERN BUILDS.

The World's Record for Time on New Track Made by a Southern Train.

The most remarkable record ever made on any railway line in this country, or probably in the world, was that of the first passenger train which ran between Washington and Savannah, Ga., over the new route of the Southern Railway Co. between New York and Florida. The completion of the route, as detailed in the last issue of the Manufacturers' Record, involved the construction of thirty-one miles of track on the section between Columbia and Savannah. This road was built through a sandy country, where the natural earth formation at frequent intervals is very loose, requiring unusual care in constructing the roadbed, both at curves and on straight stretches of track. The run over the newly-constructed line was made at the average rate of forty-five miles an hour, although the train consisted of six heavy private cars. Including the engine, it was estimated at 355 tons, which is nearly equal to a Pullman train of eight coaches. Notwithstanding this, at times the locomotive pulled the train at the speed of seventy-four miles an hour, while fully half of the distance of thirty-one miles was covered at a speed ranging from fifty to sixty miles an hour.

The accuracy of these figures is verified by a party of journalists, including a representative of the Manufacturers' Record, who noted the figures on the speed indicator. A trestle over the Edisto river over 1000 feet in length was crossed at the rate of forty miles an hour. As thirty to thirty-five miles an hour is considered as excellent time for a run on new track, the record made by the Southern can be appreciated. It demonstrated the excellence of the work as well as the power of the Southern's locomotives, although the engine which hauled the special train was one of the smallest passenger locomotives.

The new section of the road is laid with heavy steel rails, rock-ballasted and has been pronounced by the railroad commission of South Carolina the finest section of track ever constructed in that State. The test given it on the trial trip was a most severe one, yet it was so carefully and thoroughly built that those aboard the train could not detect the difference between it and the roadbed which had been solidified by years of service.

The party on board the special train consisted of Vice-Presidents Andrews and Gannon, General Manager Culp, General Passenger Agent Turk, Superintendent of Transportation Barrett, also a number of New York capitalists, as well as journalists and prominent citizens from Baltimore, Atlanta, Savannah, Charleston, Augusta and other Southern cities. At Savannah the party were entertained at lunch at the De Soto Hotel, where they met the representative citizens. The lunch was made the occasion of several speeches, in which the importance of the Southern Railway as a factor in Southern prosperity and its close association with Savannah were dwelt upon by the speakers.

Passenger and freight service has been established over the new road, which will be used for tourist travel between the North and South, as already stated in the Manufacturers' Record.

A Tribute to Mr. Hoffman.

Mr. R. C. Hoffman, who was president of the Seaboard Air Line prior to the elec-

tion of Mr. John Skelton Williams, has been presented with a silver service by stockholders of the company as a testimony of the value of his services. The pieces are engraved with this sentiment: "In honor of the integrity, fidelity, capacity and courage, which won esteem and achieved success."

DEVELOPING ARKANSAS.

How the Mississippi, Hamburg & Western Railroad Is Increasing Its Business and Industries.

The Mississippi, Hamburg & Western Railway Co., which has completed a line through Eastern Arkansas to the Mississippi river within the last two years, has played an important part in developing this portion of the South. It has a water connection to New Orleans through the Chalmette Packet Co., which has a steamboat service to Luna, the terminus of the railroad. In a recent interview General Manager J. M. Parker of the railroad company said:

"Recently fifteen new business houses have been built at Hamburg, the terminus of our road, while at Montrose, Lake Village and other points progress in proportion has been shown. Two new stores have been erected at Montrose and several buildings, including a brick opera-house and business block, at Lake Village. All along the railroad new sawmills are going up and the entire county, which a few months ago was a veritable wilderness, is now very busy and very prosperous. Soon a \$500,000 milling concern will begin the erection of mills ten miles to the westward of Hamburg. This concern has already secured paid-up subscriptions of \$400,000 to its capital stock of half a million. Before these mills can operate we will have to extend our railroad out to them. Work on an extension of twenty miles, of which this ten miles is a part, will be commenced in a short time. When the extension has been completed we will commence another of the same length, thus gradually building up the interior country and at the same time working our way across the State to a junction with the north and south roads which enter Texas.

"We are now hauling to Luna about twenty-five carloads of freight per day, and this will be largely increased when we have put on a transfer boat to connect with the Illinois Central and Southern roads on the Mississippi side. When this transfer has been put on all business not destined for New Orleans, as well as all business destined for New Orleans which cannot go by boat, can be handled cheaply and with dispatch.

"Why, to show you how rapidly new business has sprung up along our road, I have only to tell you that a short while ago it became necessary for us to build five new side-tracks between Hamburg and Luna in order to give needed loading facilities."

The history of the Mississippi, Hamburg & Western Railroad has been detailed in previous issues of the Manufacturers' Record. Mr. Parker, the general manager, was formerly president of one of the principal banks at Cripple Creek, Col., but gave up his interests in the West and came to Arkansas on account of the business possibilities of this portion of the South. He has been one of the principals in the formation and construction of this road.

Extending the Chattahoochee Valley.

In a letter to the Manufacturers' Record Mr. L. Lanier, president of the Chattahoochee Valley Railroad Co., writes that the company is now planning extensions which will aggregate about forty

miles. Surveys have been made a distance of twenty-five miles from both the north and south terminal points, but the exact length of the extensions has not as yet been determined upon.

COAL & IRON RAILROAD.

To Be a 43-Mile Extension of the West Virginia Central—To Connect with Chesapeake & Ohio.

The railroad to be built to connect the main line of the West Virginia Central with the line under construction along the Greenbrier valley is being promoted by the Coal & Iron Railway Co. Charles H. Latrobe of Baltimore, the engineer in charge, informs the Manufacturers Record that it will be forty-three miles in length, extending from Elkins, on the West Virginia Central, to the forks of the Greenbrier river. It is expected to let contracts at once for the tunnel work, and to begin active construction on the roadbed and track in the spring. The estimates of construction show that the road will cost complete about \$800,000. Several bridges will be required, the two largest averaging about 250 feet in length each.

The Coal & Iron Railway will play an important part in developing the section of West Virginia which it traverses. Already, the Manufacturers Record is informed, Northern parties have purchased several thousand acres of timber and coal lands along the route. Examinations of the formation by experts indicate the presence of iron ore in large quantities. As already stated, it will form a portion of the new route between Pittsburgh and the South, and will also give the coal operators of West Virginia a better opportunity to enter the Southern market, especially Virginia and the Carolinas.

Hotels and Southern Travel.

The prospects for tourist travel in the South, according to the statement of passenger agents, are very bright. In a recent interview C. P. Atmore, general passenger agent of the Louisville & Nashville, said:

"Look what the Plant and Flagler hotels have done for Florida. They have made the State what it is from the standpoint of a winter resort. The imperative need of the Gulf coast today is a better hotel system; houses that provide all the comforts and conveniences of the best city hotels. If some one would put in a line of hotels on the Mississippi coast such as Flagler and Plant have erected in Florida, I believe that State would no longer be the competitor that it is."

"Why? Well, for several reasons, one of the first of which is the distance and the price of a ticket. Take the man in Chicago, we will say. He has probably not thought of coming South for the winter until one of those December or January blizzards strikes him, then he suddenly concludes to take a run to the Southland. A consultation with railroad maps and with railroad agents reveals the fact that the cheapest ticket to a point where he can find a temperate summer climate is on the Mississippi coast. The nearest place is also there. The natural advantages in travel point to the range of resorts between New Orleans and Mobile, and if the hotels were there he would come."

Better Iron Than Grass.

The Seaboard Air Line has finally secured the necessary privileges from the city authorities at Charleston to construct its terminal tracks in that city. As already stated in the Manufacturers' Record, the branch of the Seaboard will be

called the Chattanooga, Augusta & Charleston Railway. In connection with this matter the Charleston News and Courier, in speaking of opposition made to the granting of the privileges, takes the ground that it is much better to have iron than grass in the streets, and terms those who are opposing the progress of the city in discouraging the construction of new railroad lines to it as "hay-makers." One of the business men, on being asked for his opinion, said that although he was in the hay business he was not a hay-maker, and did not believe in devoting the city streets to grass-growing instead of using them for railroad tracks, which would increase transportation facilities and business.

The Guyandotte Valley Road.

In a letter to the Manufacturers' Record Mr. J. C. Carpenter, one of the contractors for the Guyandotte Valley Railroad, writes that the first section will be thirty-eight miles in length, extending from Barberville, W. Va., to a connection with the Chesapeake & Ohio system, nine miles east of Huntington. Mr. Carpenter states that as soon as this portion is completed a further extension of forty miles will be built, making a total length of nearly eighty miles. The firm of Carpenter, Wright & Co., which has secured the work, will sublet a large portion of it, and may be addressed at Clarksburg, W. Va., or Clifton Forge, Va.

To Haul Turpentine.

C. T. Collins, second vice-president of the Standard Oil Co. of New York, has recently been in New Orleans on business. In an interview the fact was brought out that the trade of the company in Louisiana alone has assumed large proportions. It is intimated that it is desirous of securing return loads for its oil cars, which at present go North empty, and that it is considering the question of engaging in the turpentine business. It is reported that the company has had examinations made of a number of large tracts of pine timber with the view of purchasing them for securing the turpentine output.

Railroad Notes.

The Birmingham Electric Railway Co. of Birmingham, Ala., has ordered thirty cars to be completed by May 1 next.

The Choctaw & Memphis Railroad Co. has made arrangements with the Illinois Central to utilize its terminal facilities at Memphis.

Mr. P. S. Jones has been appointed district passenger agent for Alabama of the Louisville & Nashville Railroad. This office has recently been created by the passenger department.

Mr. C. P. Davis of Lometa, Texas, has invented a counterbalance wheel for locomotives, which has been placed on the Fort Worth & Denver Railroad, it is claimed, with considerable success.

According to a statement of President Williams of the Seaboard Air Line, the company is short of rolling stock, and could use 1000 more freight cars if it had them to meet the demands of traffic.

The report of the Kentucky railroad commission shows that during the fiscal year ending June 30, 1899, railroads operating in the State increased their net earnings by \$616,498. The railroad mileage in the State is 3065.

The Central of Georgia Railway Co. has issued a calendar for the year 1900 which combines novelty and merit. Each month is illustrated by half-tone engravings showing views of Savannah and surroundings, as well as of events in the history of the city. The figures are of un-

usually large size, and the calendar is excellently adapted for use in business offices.

The report of railroad construction in South Carolina indicates the activity which has prevailed during the past year. At the time of the report 177 miles had been completed during the previous twelve months, making a total of 2855 miles all told.

Mr. A. N. Molesworth, chief engineer of the Ohio River & Charleston Railway Co., advises the Manufacturers' Record that the company will not extend to Marion, N. C., as has been reported. It is now working on an extension of ten miles from Johnson City, about half of which is completed.

The Norfolk & Western Railroad Co. has begun to use coal cars of fifty tons capacity, and recently a train of this size was hauled into Norfolk. The nineteen cars comprising the train carried 1000 tons of coal. They will probably be used entirely on the line in the near future, replacing the cars of smaller size.

The use of electric headlights for locomotives in the South is steadily increasing. The Central of Georgia has already placed nineteen on its locomotives, and intends using them on all of its passenger engines. A number of these lights will be placed on engines which have recently been ordered by the Southern Railway Co.

The Carrollton Short Line Railroad is the title of a road about ten miles long which will be a feeder of the Mobile & Ohio in Alabama. John T. Cochrane of Tuscaloosa, who is general manager, writes that the necessary rails have been secured, and that it is intended to complete the road within six months. It will pass through a heavily-timbered section of the State.

Jottings at the Ports.

During the past six months the exports of grain at Galveston have increased by 2,360,450 bushels of corn and 2,565,850 bushels of wheat.

The report of imports from Newport News for the month of November shows a total value of \$3,104,000, an increase over the corresponding month of 1898 of \$403,000.

The business men of Newport News are considering the formation of another company to engage in the fruit trade between Newport News, Central America and the West Indies.

The R. M. Spedden Co. of Baltimore has secured a contract to construct two tugs for use in New York harbor. They will be built for the Baltimore & Ohio Railroad Co.

The Columbian Iron Works of Baltimore has secured a contract to construct a tugboat for use on Long Island sound, which will be 125 feet in length and twenty-six feet beam. It will be used by the New York & Hartford Transportation Co.

The Newport News & Norfolk Transportation Co. has been formed to operate a line of steamers on Hampton Roads. It is capitalized at \$100,000. F. W. Darling of Hampton, Va., is president; W. B. Randall of New York, vice-president, and J. M. Willis of Hampton, secretary and treasurer.

A dispatch from Edenton, N. C., is to the effect that a number of large truck farmers as well as timbermen have determined to organize a company to operate a line of steamboats in Tidewater North Carolina to Norfolk, Portsmouth and possibly Baltimore and Philadelphia in competition with the lines now in operation.

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

The Cotton Movement.

In his report of December 8 Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, shows that during the ninety-seven days of the present season the movement of cotton into sight has amounted to 4,920,907 bales, a decrease from that of the same period of 1,259,261 bales. The exports were 2,120,331 bales, a decrease of 1,096,770. Takings by Northern spinners were 1,107,475 bales, an increase of 318,930 bales; by Southern spinners, 469,980 bales, an increase of 45,643 bales.

Under date of December 9 Messrs. Latham, Alexander & Co. of New York present elaborate comparisons of the position of cotton and its prices for the past four years, and base upon numerous advices from their correspondents covering all the Southern States the statement:

"There is probably much less cotton in the hands of the planters today than for many years past. * * * The maturity of the crop was very early. Picking has been scarcely interrupted since the season began, and we are assured from reliable sources that the fields are bare, an unusual fact at so early a date. Picking is virtually over. The weather has been ideal, the roads excellent, and, as the extremely low prices of last year caused indebtedness and disaster to thousands of planters throughout the South, they very naturally have been stimulated to ship their cotton to market promptly this year, especially as conditions have been favorable and prices have been better than for two years past.

"The consumption of cotton continues upon a large scale, and the prosperous business now enjoyed by the spinning interest of the world seems assured for a long time. American spinners particularly are flourishing, have little or no stock of goods on hand and the entire product of many mills sold far ahead into the spring. It is computed that the consumption of our home mills will increase 300,000 to 400,000 bales over last year.

"The prospective stock of cotton is not likely to be in excess of the world's wants. On the contrary, a short supply is probable, unless the overwhelming testimony as to the shortness of this year's crop should prove utterly valueless and consumption greatly diminish, neither of which seems probable."

5000-Spindle Mill for Mississippi.

Plans and specifications have been completed by Messrs. Chas. A. M. Pray & Co. of Providence, R. I., for the proposed mill of the Moorhead Cotton Mills, recently reported as incorporated at Moorhead, Miss. The main building will be a structure 200 feet long, seventy-six feet wide and forty-six feet high, and contract for its erection has been awarded. The equipment of machinery will include 5000 spindles, 300 horse-power steam plant, etc. Contracts for the machinery have not been placed yet. C. H. Pond is president of the company.

A Proposition to Cotton Mills.

Levison Bros. & Co., 458 Broadway, New York, with offices in Paris and Berlin, in a letter to the Manufacturers' Record say:

"We are very desirous of taking charge of a good cotton-goods mill, and will give our assistance in every way as to finances, giving them new ideas and furthering same to success, taking over the selling

accounts. Would prefer a mill that can manufacture plain and fancy cotton goods, bleached and fancy shirtings."

Textile Notes.

Dr. W. L. Moore and others of Whitney, Tex., propose the organization of a \$25,000 cotton-mill company.

A movement is on foot at New Decatur, Ala., for the erection of a \$50,000 cotton mill, Harvey Lewis being interested.

Messrs. J. W. Rigg & Son of Terra Alta, W. Va., are rebuilding their woolen mill that was destroyed by fire recently.

Z. V. Peacock of Cochran, Ga., and others propose the organization of a \$40,000 stock company to erect cotton factory.

Theo. Mendelsohn of Winona, Miss., is forming a company with \$100,000 capital stock for the erection of a cotton factory.

The Whitney (S. C.) Manufacturing Co. held its annual meeting during the week and declared a semi-annual dividend of 3 per cent.

Messrs. C. J. Beasley and J. R. Farmer of Richmond, Texas, are investigating relative to the organization of a cotton-factory company.

S. M. Robinson reports that progress is being made on the organization of the proposed company to build 3000-spindle cotton mill in Lowell, N. C.

W. Sparling of Little Rock, Ark., has been appointed by the Board of Trade to promote a movement for the organization of a \$100,000 cotton-mill company.

At Murfreesboro, Tenn., a movement has been started for the organization of a \$100,000 cotton-factory company. W. C. Bilbro is chairman of the committee.

At the annual meeting of the Spartan Mills of Spartanburg, S. C., held this week, a semi-annual dividend of 4 per cent. was declared, payable January 1.

A company will be formed at Ellijay, Ga., for the erection of a cotton factory to be operated by water-power. Cuyler Smith of Atlanta, Ga., is promoting the enterprise.

A proposition has been made in Charleston, S. C., that a company be organized for the erection of a 60,000-spindle cotton mill to spin fine yarns from Sea Island cotton.

The Southern Bobbin & Spool Co. has been organized by Chas. H. Jordan and others for the operation of a bobbin and shuttle factory to be removed to Monticello, Ga., from Atlanta.

There are now in course of erection in various sections of Mississippi, according to a dispatch from Jackson, six new cotton mills, and nearly a dozen companies are being organized on the co-operative plan.

W. P. Potter of Pittsburg, Pa. (440 Diamond street), contemplates the erection of a knitting mill at Brevard, N. C. The production of hosiery and underwear is proposed. Estimates on cost of plants are wanted.

The town council of Athens, Ala., is offering inducements for the location of a cotton factory. The inducements include fifty acres of land, free water supply for a term of years, electric lights for the grounds, etc.

An annual dividend of 5 per cent. was declared by the Pacolet (S. C.) Manufacturing Co. at its meeting held this week. The directors gave consideration to proposed enlargements or the erection of a new mill, but decided against it.

The meeting of the directors of the Laurens (S. C.) Cotton Mills was held during the week. New York and New

Jersey parties interested were present. The company declared a semi-annual dividend of 4 per cent., payable January 1.

Messrs. John Kamper, S. J. Taylor, Webb Buckley and C. H. Vorhees of Enterprise, Miss., are interested in promoting a cotton-factory movement in their town. Subscriptions are being solicited by John Kamper, chairman of committee.

The Cordele Cotton Mills Co. of Cordele, Ga., has been organized, with capital stock of \$50,000, to build a 3600-spindle mill; R. L. Wilson, president; Cuyler Smith (of Atlanta), vice-president; C. W. Murray, secretary, and C. C. Cutta, treasurer.

Messrs. C. H. Ferrell, H. C. Burnett, J. R. Jarrell and R. L. Beare are the organizers of the company reported last week as to build a 5000-spindle mill at Humboldt, Tenn. A \$100,000 stock company will be incorporated under the title of Humboldt Cotton Mills.

An industrial meeting was held last week in New Orleans, La., at which a conference was held for the furthering of a cotton-factory project. A committee was appointed to solicit subscriptions to a company to build mill. Messrs. Gus Lehman and S. Odenheimer are interested.

Seth M. Milliken of New York (interested in several Southern cotton mills) and other New York parties have been in the South during the past week investigating the cotton mills of the South. It is said that they contemplate the erection of one or more large mills, and are looking for a location.

The Knoxville (Tenn.) Knitting Co. has commenced work upon the erection of its proposed new mill lately reported. This plant is to replace the one burned some weeks ago. New building will be a two-story brick structure 50x150 feet, costing near \$8000. About \$20,000 worth of machinery will be put in position.

The Business Men's League of San Antonio, Texas, is promoting a movement for the formation of a cotton-factory company, and is desirous of having an experienced superintendent take stock and manage the factory when built. Manufacturers of machinery are also asked to send estimates on different size plants.

The new Brandon Mills of Greenville, S. C., has awarded contract to J. W. Cagle for the erection of its necessary buildings. Main building, engine and boiler house, warehouses, etc., will be the structures included. Messrs. Lockwood, Greene & Co. of Boston, Mass., are the engineers for this plant of 12,000 spindles and 300 looms. F. J. Westervelt is president.

Messrs. John F. Wiley and B. N. Duke of Durham, N. C., propose the development of the extensive water-power of Smiley Falls, in Harnett county, near Dunn, N. C., and erect a cotton mill to utilize the power developed. It is probable that the cotton mill will cost \$500,000. When interviewed by the Manufacturers' Record's representative Mr. Wiley declined to give at present any details as to the contemplated enterprises.

Mr. J. T. Floyd, Jr., reported recently as organizing mill company, has succeeded in obtaining the necessary subscriptions to form a \$125,000 stock company at Prattville, Ala. The company will acquire the water-power and buildings of the Indian Hill cotton factory (for many years an abandoned plant), near Prattville. The water-power will be developed, the building will be improved and there will be installed a complete equipment of machinery for the manufacture of sheetings, shirtings, etc., for home and export trade.

COTTONSEED OIL.

This department is open for the full and free discussion of trade topics and practical questions, and contributions are invited from men who are identified with this industry. Items of news are always acceptable.

The Market for Cottonseed Products.

New York, N. Y., December 12.

The cotton-oil market is, if anything, in a stronger position today than a week ago. Those who have holdings are firm in their views, declining to release unless at full quotation. Crude oil is becoming more scarce daily, but the demand for this latter is not so strong, in view of the decreased demand for compound lard. Pure lard is quoted at 5.25 cents, January delivery, Chicago, with the compound article at 5 and 5½ cents. Up to the present week a brisk trade was done in compound lard, as much as 150 cars being placed at this market during the previous week. Tallow is strong, No. 1 city good Chicago being quoted at 4½ to 4¾ cents. There is a sentiment in some quarters that the cotton-oil market is not so strong as, say, a month ago, and that the prospect for the mills obtaining 30 cents for loose oil is scarcely so bright as at that time. The strong advance in the price of seed has not upset trade conditions, but has rather had the effect of strengthening the situation all around, while indicating, to some extent, the seed shortage. In the Southeast seed is now quoted at \$15 to \$15.25 per ton. Concerning estimates of the crop and present crush of seed in Texas, a New York paper has the following to say: "Last season the crush of Texas and the Territories for 1898-99 was about 800,000 tons, which produced about 28,000,000 gallons of crude oil. So far this season the crush is estimated at 475,000 tons of seed, producing about 16,150,000 gallons of crude. Up to the present about 95 per cent. of the crop has been picked, and only about 85 per cent. of the seed for crushing has been sold." With regard to sales, as much as 33 cents has been obtained for choice yellow in 2500-barrel lots, the highest price yet. The bidding here for that grade is 32½ cents, and 33 cents in New Orleans. It is reported that a Western refiner has bought 100,000 barrels of crude at an average of 16 cents in tanks. Ocean freights are high, not only here, but also at all Southern shipping points. The following are closing prices: Crude, tanks, 24½ to 25 cents; crude, nominal, barrels, 27 to 27½ cents; summer yellow, prime, 32½ to 33 cents; summer, off grades, 32½ to 33 cents; yellow, butter grades, 35 cents; white, 34 cents; winter yellow, 36 to 36½ cents; salad oil, 37 to 38 cents, and soap stock \$5 to 90 cents per 100 pounds. English refined oil, Liverpool and Hull, is firm at 17s. 6d., December-April delivery. Meal is quoted here at \$25.60 per ton, and \$26 Boston.

Cottonseed-Oil Notes.

A rivalry between buyers of cottonseed in Navarro county, Texas, has resulted in the price of seed being advanced to \$14 per ton, that being the ruling price on the 5th inst.

Cottonseed products in Texas are a shade higher than last week. Shippers have some difficulty in getting desirable berth room from Galveston, and large shipments are awaiting export both home and abroad. The crush of Texas and the territories so far this season is estimated at 475,000 tons of seed, producing about 16,150,000 gallons of crude oil. The market at Galveston closed firm on the 9th inst. as follows: Prime crude oil, loose, 24½ to 24¾ cents; prime summer yellow oil, 26½ to 26¾ cents; linters, 3½ to 3½ cents; prime cottonseed cake and meal,

\$18.50 to \$19 per ton, all f. o. b. Galveston. Houston mills are paying \$9.50 per ton for cottonseed f. o. b. interior towns.

The annual meeting of the stockholders of the American Cotton Oil Co. was held last week at Guttenberg, N. J., at which the annual report was presented and the election of directors for the coming year held. The net profits for the year were \$1,637,014.58, which, after a dividend of 6 per cent. on the preferred stock and of 4 per cent. on the common, left a balance to be carried to the previous surplus of \$216,414.58, making a total surplus at the end of the fiscal year \$6,443,744.21. The former board of directors was re-elected. Later the directors held a meeting for organization, at which the retiring officers were re-elected as follows: President and chairman of the board of directors, Geo. A. Morrison; executive committee, Geo. A. Morrison, J. Frederick Chamberlin and Robert F. Munro; vice-president, Robert F. Munro; secretary and treasurer, Justus E. Ralph.

The Estelle Cotton Mills Co. of Selma, Ala., is about to contract for the erection of a two-story addition 79x152 feet in size, a frame warehouse 50x70 feet and thirty cottages for operatives. Contracts have been about closed. This company was reported several months ago as having bought the Selma Cotton Mills of 5000 spindles and 144 looms, and as to put in new machinery; R. H. Mabry, secretary.

The Dallas Manufacturing Co. of Huntsville, Ala., held a stockholders' meeting last week and declared a semi-annual dividend of 3½ per cent. The company will meet on the 19th, when the directors will consider the proposed increase of capital stock by \$500,000 to build another 25,000-spindle and 750-loom mill. It is stated that this new addition will undoubtedly be built.

The Golden Belt Manufacturing Co. of Durham, N. C., has been reorganized and decided upon the erection of an entirely new factory. The officers are T. B. Fuller, president; George W. Watts, vice-president, and R. B. Fuller, secretary. The company has purchased site in the suburbs of Durham, where it will build a plant of 1500 spindles and 500 looms for the production of bags.

It is reported that the American Development Co. has purchased land and riparian rights near Danbury, N. C., with the intention of utilizing the property for cotton-manufacturing purposes. The water-power is to be developed and one or more cotton mills built. Messrs. B. N. Duke and Geo. W. Watts of Durham, N. C., are interested in this company.

Application has been made for the incorporation of the Dillon Cotton Mills of Dillon, S. C., with capital stock of \$150,000, for the erection of a cotton factory. Incorporators are Messrs. Charles E. McCall, S. C.; C. Warren Davis of Augusta, Ga.; J. W. Dillon, H. P. Price, A. B. Surles and others of Dillon, S. C. J. W. Dillon can be addressed.

The development board of Alexandria county, Virginia, is working for the construction of a memorial bridge across the Potomac from Washington to Arlington, the strengthening of the Aqueduct Bridge so as to permit its use by electric cars, and the establishment of a navy-yard at Alexandria.

The city of Louisville, Ky., will ship about \$20,000 worth of distillery machinery to Mexico as soon as it can be manufactured.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record,
Baltimore, Md., December 14.

Throughout the general market for phosphate rock the tone of trade is evidently stronger. As in other fertilizer ingredients, values continue firm, with a better demand from manufacturers. At all points in the Southern phosphate belt the volume of business continues to expand with the close of the year, and miners are generally working their deposits for all they are worth. The market in South Carolina is firm, with shipments rather more liberal to coastwise ports, while the foreign demand is fair. Values f. o. b. Ashley river and Charleston are firm and unchanged. Shipments from Florida ports are not as liberal as several months ago, owing partly to the scarcity of tonnage and high freight rates. Shipments of Florida phosphate rock from Savannah for November amounted to 15,117 tons, all foreign, and from Tampa shipments for the same month were better than usual. Prices for all grades of Florida phosphate rock are firm. In the Tennessee phosphate section all the mines are being vigorously worked, and the output for the current year is likely to be far ahead of recent estimates. There is a good domestic and foreign demand for Tennessee rock, but the scarcity of ears has a tendency to seriously interrupt shipments. Prices at Mt. Pleasant and other fields remain firm at \$2.50 per ton for 70 and 72 per cent. rock, \$2.75 to \$2.85 for 75 per cent. and \$4 to \$4.50 for 78 per cent. export rock. The following phosphate charters were reported at New York during the past week: A Norwegian steamer, 1387 tons, from Tampa to Bordeaux at 21/ December; schooner John W. Linnell, 881 tons, from Port Royal to Baltimore at \$3, and schooner Mary Lee Patton, 522 tons, from Ashley river to Baltimore at \$3.

Fertilizer Ingredients.

The market for ammonites is reported firm, with the volume of trade more satisfactory. There is a fairly active demand from the South, and buyers from that section have been purchasing more freely so far during the present month. The Eastern demand is only moderate. Stocks in the West are reported light, especially in blood, while values generally rule firm at quotations. Sulphate of ammonia is firm and a shade higher for forward deliveries. Nitrate of soda and other ingredients remain unchanged.

The following table represents the prices current at this date:

Sulphate of ammonia (gas).....	\$2.90	@ 2 92½
Nitrate of soda.....	1.70	@ 1 72½
Blood.....	2.00	@ 2 02½
Hoof meal.....	1.80	@
Azotine (beef).....	1.90	@ 1.95
Azotine (pork).....	1.90	@ 1.95
Tankage (concentrated).....	1.77½	@ 1.80
Tankage (9 and 20).....	1.87½	& 10/1.90 & 10
Tankage (7 and 30).....	17.00	@ 17.50
Fish (dry).....	20.00	@
Fish (acid).....	12.00	@

Phosphate and Fertilizer Notes.

It is stated that an effort is about to be made to establish a fertilizer factory at Waycross, Ga. The promoters of the enterprise think that \$100,000 of stock can be sold.

The British steamer St. Oswald cleared from Savannah, Ga., last week for Havre and Antwerp, having among her cargo 2107 tons of Florida high-grade phosphate rock for the latter port.

The Italian ship Papa Emanuel has been chartered to load a cargo of phosphate rock at Fernandina, Fla., for a port in Australia during the present month. The rock will come from the mines of the Dunnellon Phosphate Co.

The steamer S. T. Morgan cleared last

week from Charleston, S. C., with 2000 tons of phosphate rock for Richmond, and the schooners *Mary Lee Patton* and *S. B. Marts* for Baltimore, the former with 800 tons of phosphate rock, and the latter with 850 tons.

Messrs. J. M. Lang & Co. report the shipments of high-grade Florida rock from the port of Savannah, Ga., for the month of November as follows: Manchester 1772 tons, Liverpool 3679 tons, Bremen 4590 tons, Rotterdam 2401 tons and Hamburg 2675 tons, or a total of 15,117 tons.

The schooner *James W. Fitch* finished loading 1530 tons of pebble phosphate at Port Tampa on the 6th inst. for Elizabethport, N. J. The cargo came from the mines of the Green Head Phosphate Co. The schooner *Horace W. Macomber* arrived at Port Tampa on the 6th to load a cargo of phosphate rock.

It is stated that the American Agricultural Chemical Co. has purchased the whaleback steamer *City of Everett*, which it will employ in the carrying trade from New York to Southern phosphate ports. This steamer has a freight capacity of 4000 tons of phosphate rock. It is thought that the placing of this vessel in the trade will have a tendency to relieve to some extent the freight market in transmission of phosphate rock from Southern ports.

It is stated that a Chicago syndicate visited Gallatin, Tenn., last week to look through the Sumner county phosphate field, and that propositions have been made by these parties for the purchase of the Sumner Phosphate Co.'s interests. Mining in Sumner county has been very active recently, and as the railroad from these mines to the Louisville & Nashville road has been completed, shipments will begin at once. It is stated that over 60,000 tons of phosphate rock are ready to go forward.

More Mules for Africa.

From the present indications several additional cargoes of mules will be sent from New Orleans to South Africa before the demand from the British government ceases. A recent shipment consisted of about 1000 by the steamship *Hermes*.

Among the features of the December *Chautauquan*, now published at Cleveland, Ohio, are full-page illustrations of the Madonna and Child and of the Holy Night, appropriate to the Christmas season, and papers by Henry H. Smith on parliamentary reform in national honor of representatives, by Alice Freeman Palmer on the problem of happiness, by Prof. E. E. Sparks on the expansion of the American people, by Prof. Richard T. Ely and Dr. Thomas K. Urdahl on the progress of socialism since 1893, by Prof. Chas. F. Thwing on the inner life of Phillips Brooks, by J. Lawrence Lockland on economics and socialism.

The International Freight and Transportation Bureau, No. B, 21 Produce Exchange, New York city, a department of the National Association of Manufacturers, has been designated by the United States commissioner-general to the Paris Exposition as an agency for the forwarding of exhibits.

The Greensboro Lumber Co. of Greensboro, N. C., has been incorporated, with a capital stock of \$10,000. The incorporators are W. W. Whyte of Welch, W. Va.; John M. Stivers of Greensboro and John W. McNairy.

During the first eleven months of the year the value of exports from Norfolk, Va., was nearly \$12,500,000.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

One View of Lumber.

[Special Cor. Manufacturers' Record.]

Durham, N. C., December 12.

Mr. J. C. Hundley, president of the Hundley Lumber Co., which has a 20,000-feet-capacity saw-mill here for cutting hardwood for the Northern and export markets, says that he is afraid of a collapse in the lumber boom; that when, eight or ten months ago, the building mania began all over the country the wholesale lumber dealers were short of stock and the mills then running could not supply the demand, which created a phenomenal rise; that this condition occasioned a great increase in new mills, with the consequence that it is now hard to make contracts for the output, particularly in North Carolina, either for home or foreign demand, except for strictly prime material and at a discount on recent prices.

Several large buildings had ground broken today—a half-acre brick storage-house for the American Tobacco Co., a large brick structure of three stories for R. H. Wright on Main street, with stores underneath, and a couple of brick stores on Church on the B. L. Duke property.

LUMBER MARKET REVIEWS.

Baltimore.

Office Manufacturers' Record,

Baltimore, Md., December 14.

There has been a moderate volume of business in the local lumber market during the past week, and the demand in certain avenues is still of a satisfactory character. North Carolina pine men are enjoying an excellent trade demand, and the movement shows no signs of any decrease in volume. Manufacturers are getting full prices, and have very small stocks on hand at the moment. Some leading lumber companies that last year at this date had from 10,000,000 to 12,000,000 feet of lumber in their sheds are now down to a stock of less than 1,000,000 feet. Air-dried North Carolina pine is selling well in the local market, and prices hold very steady. White pine is in fair request, with values firm. Cypress is quiet, with prices steady. The demand for hardwoods continues brisk, and out-of-town buyers have been purchasing freely. There is a good demand for poplar and ash. The foreign export demand is moderate, and shipments are about as usual.

Charleston.

[From our own Correspondent.]

Charleston, S. C., December 11.

Considerable activity has characterized lumber operations in this section during the past week. The market continues to show decided firmness as to values, and the demand for lumber shows no sign of any decrease. At adjacent milling points the various saw-mill plants are all running at their full capacity and are well supplied with orders. Shipments during the past week were as follows: Steamer *Oneida* for Boston with 30,201 feet of lumber; for New York schooners *Georgetta Lawrence* with 240,000 feet of lumber, *Hattie C. Luce* with 290,000 feet and *George E. Dudley* with 392,000 feet. At Georgetown there is at present unusual activity in industrials. The Tilghman Lumber Co. is rapidly getting its big saw-mill plant in shape, and expects to begin cutting lumber some time in January. The company has brought a cargo of railroad iron, cars and machinery from Nor-

folk, and will soon begin to build a logging road into its timber lands. This company starts out fully equipped for business and with every prospect of success. The Atlantic Coast Lumber Co. is forging ahead with its mammoth enterprise. The officers of this company have decided to increase the capacity of its large storage sheds on the water-front, and when completed the structure will be 1200x104 feet, with capacity for storing and handling at one time over 5,000,000 feet of lumber. All the mills at Georgetown and vicinity are very busy and have all the orders they can handle. There is a moderate offering of tonnage and lumber. Freights continue firm. Shipments of lumber from Charleston since September 1 amount to over 15,000,000 feet.

Mobile.

[From our own Correspondent.]

Mobile, Ala., December 11.

The week under review has developed more than an average volume of business in lumber and timber. The lumber trade so far this month has been unusually active, with a good Cuban trade. There is also an active inquiry from Central and South America. The shipments during the past week amounted to 2,047,481 feet, and for the season 36,118,613 feet, against 12,846,006 feet last year. Of the shipments last week nearly 1,700,000 feet went to New York and Sound ports. The market for all desirable lumber continues firm, with prices hardening and manufacturers not disposed to accept anything except outside figures. All the mills here and at points adjacent in this State and Mississippi are running at their full capacity and are well furnished with orders. The timber trade continues fair, but shipments during the past fortnight have been very light. Hewn timber when placed upon the market will bring 15 cents per cubic foot, basis of 100 cubic feet, average B1 good. Hewn oak is in limited demand at 15 to 18 cents per cubic foot, and poplar is quoted at 12 cents per cubic foot. Sawn timber is steady at 14½ to 15 cents per cubic foot. Cypress logs are in good demand at 8 to 12 cents per cubic foot. Pine saw-logs are in good demand at \$6 to \$8 per 1000 superficial feet.

Beaumont.

[From our own Correspondent.]

Beaumont, Texas, December 11.

The conditions surrounding the lumber market in this section are at the moment very favorable, and the demand for material is holding on remarkably well under favorable climatic conditions. Manufacturers are generally well supplied with orders, and both wholesale and retail men have been purchasing liberally during the past week, taking advantage of the low rates of freight. Under the present demand for lumber prices rule very firm, and everything points to full figures for desirable lumber for some time to come. From interior points in the State there is an unusual demand for lumber for building purposes, while in a local way a large amount of material will go into consumption this season for city building and general improvements. From railroads there is an extra call for ties and timbers, and from car-builders for sills and other material. The foreign export trade is improving, and the offering of desirable tonnage while at present is light, it is expected that later on berth room will be more plenty. There is a better demand from North Atlantic ports, and considerable new business has been developed during the week. As fast as charters can be fixed considerable lumber will be shipped to Philadelphia and other North Atlantic ports.

Lumber Notes.

The planing mill of Love, Boyd & Co. at Scottsville, Ky., was destroyed by fire on the 7th inst. Loss is estimated at \$10,000, partly insured.

The Memphis Furniture Manufacturing Co. of Memphis, Tenn., has purchased the Vicksburg Furniture Factory and will enlarge and operate it.

The Kirch-Eckhardt Lumber Co. of St. Louis has been incorporated, with a capital stock of \$10,000, all paid up. The incorporators are Henry Kirch, Frederick Kirch and Paul Eckhardt.

Hildebrand & Co., who operate a sash, door and blind factory at Galveston, Texas, have purchased property in that city for \$15,000 and will establish their several properties thereon.

Messrs. Corbin & Willis of Baltimore have purchased a large tract of timber near Negley Station, on the Richmond, Petersburg & Carolina Railroad. The price paid is said to be \$10,000.

The Kyle Lumber Co. of Gadsden, Ala., is converting the plant of the Alabama Furniture Co. into a large planing mill. A dry-kiln 25x120 feet of the Standard dry-kiln pattern is being erected with a capacity of 20,000 feet daily. The plant will be ready for operation about January 1.

The Ouachita Mineral Land & Timber Co. of Polk county, Arkansas, has been incorporated, with a capital stock of \$1,000,000, of which \$500,000 has been subscribed. The officers of the company are W. J. Alder, president; C. C. Palmer, vice-president; F. W. Jaques, secretary; W. P. Parks, treasurer.

Contracts were awarded last week for material to be used in the Huntingdon improvements at the West End flats at Galveston, Texas. Among the contracts awarded was one for an item of 6,000,000 feet of lumber and 4500 piles. The contract for creosoting half of this amount of timber was awarded to the International Creosoting Co. of Beaumont; the other half will be treated at the Southern Pacific's own plant at Houston.

L. H. Beyerle, E. L. De Camp and Ira J. Ryerson of Goshen, Ind., have organized the Northern Indiana Lumber Co., and will establish a saw-mill plant either at Clinton or Knoxville, Tenn. The company has purchased over 3000 acres of the best timber land in East Tennessee. It recently secured 5000 acres of timber land between Monterey and Harriman, Tenn., on the proposed route of the Tennessee Central Railroad. The timber lands of the company consist mostly of hardwood, oak and poplar being the principal commercial woods.

The regular monthly meeting of the Gulf Coast Lumbermen was held last week in Mobile, Ala., with J. W. Black in the chair and W. J. Kilduff, secretary. South American and Cuban schedules were discussed, and the matter of long lengths in South American schedules came in for a large amount of discussion, the trend of the argument being that a protective price should be put upon long lengths in order to force South American buyers to order the actual lengths needed. The Pensacola and Mobile classifications were discussed, and a motion was made that the Mobile classification be amended so as to conform as nearly as possible with that of Pensacola. The matter of classification was referred to a committee of three, to report at the regular meeting the first Wednesday in January. The export bureau of information was reported to be in a flourishing condition, with a membership of twenty-two. After some further discussion on trade topics the meeting adjourned.

CONSTRUCTION DEPARTMENT.

THE MANUFACTURERS' RECORD
 seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

It often occurs that the organization of a new company in a town is not known by the postmaster, and hence letters addressed to the company are returned marked "not known." The Manufacturers' Record reports the first organization of all companies, and our readers, in seeking to get into communication with them, should be very careful in deciding how to address them, and it is often advisable to add the names of one or more incorporators as an aid to the postmaster in delivering mail.

ALABAMA.

Anniston—Coal and Iron.—J. M. Billups, Jr., 120 Broadway, New York, states that a combination has been made of the Woodstock Iron Co. and of large coal and iron properties in Alabama and Tennessee, and that the deal was made by F. C. Dunn of Chicago.

Bessemer—Pipe Works.—The United States Cast-Iron Pipe Co., which controls the pipe works at Bessemer of the Alabama Pipe & Foundry Co., will, it is reported, expend about \$100,000 in new machinery and remodelling the plant; David Giles, manager, Chattanooga, Tenn.

Birmingham—Steel Mill.—The Union Steel & Chain Co. (Chas. R. De Freest, secretary, Empire Building, New York city) is reported as to put in operation the Henderson steel plant at North Birmingham, recently acquired. Company will add to the plant four steel furnaces with capacity of twenty-five tons per day each; improvements will cost about \$400,000. Property adjacent the steel plant is being inspected with a view to erecting on it manufactures for consuming output of the steel plant.

Birmingham—Steel Mill.—The Republic Iron & Steel Co. (main office Chicago) is erecting a blooming mill adjacent to the steel plant of the Birmingham Rolling Mill, recently acquired by it. The company will also build two additional furnaces of 250 tons daily capacity near Birmingham, as lately reported.

Birmingham—Mining and Plumbers' Supplies.—The R. M. Newbold Co. (reported recently as incorporated) succeeds the Milner & Kettig Co., manufacturer of mining and plumbers' supplies.

Birmingham—Castings Foundry and Coke Ovens.—The Tennessee Coal, Iron & Railroad Co. is developing mines Nos. 8, 9 and 10, and a new mine at No. 3 Pratt, which justify the expectation of an increased output of 2500 tons per day within sixty days; is also building 310 coke ovens—110 at No. 4, 100 at No. 3 and 100 at No. 5 mine, and has completed seventy-five at Jasper for use of Sheffield furnaces. At a meeting of the board of directors it was determined to build at Ensley a large foundry for manufacture of steel castings.

Ensley—Foundry.—See item under Birmingham, Ala.

Gadsden—Planing Mill and Dry-kiln.—The Kyle Lumber Co. is converting the plant of the Alabama Furniture Co. into a planing mill with capacity of 20,000 feet per day, and erecting dry-kiln 25x120 feet.

Greensboro—Electric-light Plant and Water Works.—James E. Webb of Birmingham has received contract for erection of electric-light plant in Greensboro. Mr. Webb is also reported as having purchased the Greensboro water works.

Greensboro—Cotton-oil Mill.—It is reported that a cottonseed-oil mill will be erected. Names of interested parties will be announced later.

Huntsville—Brewery.—H. C. Heyer and H. A. Raeppe of Freeport, Ill., will establish brewery at Huntsville, as lately reported; capacity 30 barrels per day.

Huntsville—Telephone Company.—The Independent Telephone Co., composed of P. F. Farnsworth, W. P. Swaney and others, has been granted franchise to operate independent system of telephones; company will install metallic-circuit system.

Huntsville—Telephone-system Improvement.—The Bell Telephone Co. will equip its telephones with metallic circuits, expending \$5000 in the improvement.

Huntsville—Handle Factory.—E. W. Nixon, president Nixon Handle Co. of Bridgeport, Ala., states that there is no truth in the report that he will establish a plant at Huntsville.

Huntsville—Handle Factory.—M. R. Grace is forming a \$60,000 company for the establishment of handle factory at Huntsville, and has purchased the Nininger-Craven plant at Gurley (noted last week).

Huntsville—Saw-mill.—George W. Stegall of Tullahoma, Tenn., will erect a \$40,000 saw-mill at Huntsville.

Jackson—Electric-light Plant and Water Works.—M. T. White, Birmingham, Ala., is preparing estimates on the cost of construction for water works and electric-light plant for Jackson. Address "The Mayor."

Mobile—Hardwood Mills.—Jesse Thompson of Memphis, Tenn., states that there is no truth in the report that he will erect mill at Mobile.

Nauvoo—Coal Mines.—The Stobert & Donaldson Coal Mining Co. has been organized at Pratt City, Ala., with F. Donaldson, Sr., president; R. R. Stobert, vice-president; G. W. Donaldson, secretary and treasurer, for the development of 300 acres of coal lands at Nauvoo.

New Decatur—Cotton Mill.—Efforts are being made for the organization of a \$50,000 stock company to erect a cotton mill. Address Harvey Lewis, who is interested.

Prattville—Cotton Mill.—The Indian Hill Cotton Factory, near Prattville (idle for a number of years), will be remodeled and equipped with new machinery for the manufacture of sheetings, shirtings, etc., by a \$125,000 stock company being organized for that purpose. Address J. T. Floyd, who is interested, and who was reported recently as forming a company for establishment of cotton mill. Water-power will be used.

Selma—Cotton Mill.—The Estelle Cotton Mills Co. (recently noted as organized in succession to Selma Cotton Mills) will erect extension two stories high, 79x152 feet, in which to place more machinery; contract about closed; R. H. Mabry, secretary.

Tuskegee—Water Works and Lighting Plant.—Efforts are being made to secure funds to install a plant for lighting the buildings and property of the Tuskegee Normal and Industrial Institute; steam or hot-water heating is also proposed; efforts will also be made to increase the water supply at a cost of \$7000. Address Booker T. Washington, principal.

ARKANSAS.

Little Rock—Cotton Mill.—Efforts will be made for the organization of a \$100,000 stock company to erect a cotton mill. Address M. M. Cohn, president Board of Trade, or W. Sparling.

Malvern—Bridge.—As soon as plans and specifications are procured the bridge commissioners of Hot Springs county will advertise for construction of bridge across Ouachita river. Address D. S. McCray, commissioner.

Mena—Mineral, Land and Timber.—The Ouachita Mineral, Land & Timber Co. has been incorporated, with capital stock of \$1,000,000, of which \$500,000 has been subscribed; W. J. Adler is president; C. C.

Palmer, vice-president; F. W. Jaques, secretary; W. P. Parks, treasurer.

Pine Bluff—Packet Company.—Alex. Perdue is president; Simon Bloom, H. H. Huhn, P. P. Byrd, L. O. Knox and John M. McCain directors of the Pine Bluff Packet Co., reported recently as incorporated, with capital stock of \$10,000; company will operate steam-boats or barges for transportation purposes.

Wilmar—Lumber Company.—The Gates Lumber Co. will increase its capital stock from \$100,000 to \$250,000.

FLORIDA.

Crystal River—Lumber Company.—The Gulf Lumber Co. has been incorporated, with capital stock of \$50,000. Robert J. Knight is president; Walter Ray, vice-president; N. Barce, secretary and treasurer.

Florida—Milling and Turpentine Plants.—It is reported that the Louisville & Nashville Railroad Co., J. G. Metcalfe, general manager, Louisville, Ky., has sold all its lands in Western Florida, aggregating 600,000 acres, to a Michigan syndicate that will establish a milling and turpentine business.

McIntosh—Starch Factory.—Messrs. Sampson & Norsworthy are endeavoring to form company for the establishment of a starch factory.

St. Augustine—Ice Factory.—The St. Augustine Ice Works, J. W. Simmons, proprietor, reported burned, will be rebuilt; loss on burned plant \$45,000.

Tampa—Saw-mill.—Edenfield & Jetton will establish saw-mill.

GEORGIA.

Athens—Foundry.—Capt. James White has purchased and will put in operation the Athens Foundry and Machine Shops.

Atlanta—Electric-light Plant and Water Works Improvements.—The legislature has passed bills authorizing the city to issue bonds for \$500,000, of which \$300,000 is proposed for electric-lighting plant and \$200,000 continuation of water mains. Reference to this proposed improvement was recently made. Address "The Mayor."

Atlanta—Electric Plant.—H. M. Atkinson has, it is reported, placed orders for about \$650,000 worth of material and supplies for improvements to the Georgia Electric-Light Co.'s electric-light and power plant, putting its wires underground and in constructing new lines for the Collins Park & Belt Railroad Co.; also for additions and improvements to power plant.

Cochran—Cotton Mill.—Efforts will be made for the organization of a stock company to erect cotton mill. Address Z. V. Peacock.

Columbus—Telephone System.—An ordinance has been introduced in the city council authorizing the granting of franchise to W. N. Shine and George Y. Banks for construction of telephone system.

Cordele—Cotton Mill.—The Cordele Cotton Mills Co. has been organized, with R. L. Wilson, president; Cuyler Smith of Atlanta, vice-president; C. W. Murray, secretary, and C. C. Cutts, treasurer, for the establishment of a 3600-spindle mill; capital stock \$50,000.

Ellijay—Cotton Mill.—Plans are being discussed for establishment of a small cotton mill at Ellijay. Cuyler Smith of Atlanta is interested.

Monticello—Spool and Bobbin Factory.—Bonner Jordan, reported last week as having purchased the spool and bobbin factory at Augusta and to remove to Monticello, has, with Chas. H. Jordan and others, formed the Southern Spool & Bobbin Manufacturing Co. to operate it.

Morris Station—Saw-mill, Grist Mill, etc.—F. M. Carner & Son of Springvale, Ga., is erecting saw-mill at Morris Station, as reported recently; capacity 10,000 feet per day. Later on a grist mill, ginnery and planing mill will be added. Address at Springvale.

Savannah—Broom Factory.—O. S. Kulman, (operating an antiseptic broom factory) has, with others, incorporated the Antiseptic Broom Co., with capital stock of \$100,000, for the enlargement and extension of his plant.

Thomasville—Cotton Compress.—Samuel W. Mays & Co. (operating cotton compress) will, it is reported, erect another press at a cost of \$40,000.

Toccoa—Water-power-Electrical Plant, Water Works, etc.—E. P. Simpson has been granted franchise to build and operate water works, electric-light plant and railway system. It is proposed to organize a stock com-

pany to develop about 5500 horse-power at Bull Sluice for the generation of power to be transmitted electrically for operating the three systems mentioned.

Valdosta—Canning Factory.—Varn & Hahn will establish canning factory.*

Waycross—Fertilizer Factory.—It is stated that a \$100,000 stock company will be organized for erection of fertilizer factory. Address B. F. Lipscomb, who is interested.

KENTUCKY.

Eddyville—Furniture Factory.—The Albin Furniture Co. of Louisville, Ky., will establish furniture factory in branch penitentiary at Eddyville.

Eminence—Distillery.—Fible & Crabb's distillery has been purchased by George Washburn of Louisville (it is understood for J. and F. Friburg of Cincinnati, Ohio) and will be remodeled and put in operation; capacity will be increased from 300 to 500 bushels per day.

Louisville—Brass Foundry, etc.—The Houser Bros. Brass Manufacturing Co. (recently reported as incorporated) succeeds Houser Bros. Co., is enlarging its plant, having purchased the patterns and nearly the entire plant of the Eagle Brass Works. Address R. M. Houser, president.*

Louisville—Tobacco Factory.—Joe P. Collins has made plans for addition to factory of Strater Bros. Tobacco Co.

Louisville—Bolt and Iron Works.—The Louisville Bolt & Iron Co. (recently reported as incorporated for the establishment of bolt and iron works) has secured site, 300x500 feet, and will begin at once erection of necessary buildings; S. Bush, president.

Louisville—Gutter Stays, etc., Factory.—The Longest-Horan Co. has been incorporated for the manufacture of gutter stays and hanger straps patented by James H. Horan; incorporators, C. S. Longest, J. H. Horan and W. B. Longest; capital stock \$2000.

Mayfield—Ice Factory.—A. M. Jones is president; J. D. Grover, vice-president, and T. B. Robertson, secretary and general manager of the Mayfield Coal & Ice Co., reported recently as incorporated; company will drill well for furnishing water and erect a 10-ton ice factory.

Middlesborough—Coke Ovens.—The Virginia Iron, Coal & Coke Co., Welton Graham, general superintendent, Bristol, Va., which owns two furnaces at Middlesborough and was recently reported as to repair and put in operation its open-hearth steel plant at this point, is also reported as to erect 300 coke ovens.

Nicholasville—Planing Mill.—Dr. Elmer Northcutt of Richmond, Ky., and C. C. Burdin of Nicholasville have purchased planing mill at Nicholasville and will install circular saw-mill to operate in connection with it.

Paducah—Towing Company.—The Tennessee Towing Co. has been incorporated, with capital stock of \$3300, by Allen and James Gray of Evansville, Ind., and J. J. Helm of Grayville, Ill.

LOUISIANA.

Abbeville—Rice Mill.—Eli Wise is president; G. Godchaux, vice-president, and L. O. Brouard, secretary, of the Abbeville Rice Mill Co., recently reported as incorporated; will commence construction of buildings at once.

New Orleans—Packing Plant.—The Crescent City Stock-Yards & Slaughter-House Co., Ltd., A. B. Blakemore, general manager, has under consideration the erection of a packing-house, as previously reported.

New Orleans—Cotton Mill.—Efforts are being made for the organization of a company to erect a cotton mill. Address Gus Lehman for information.

New Orleans—Mercantile Agency.—Chartered: The Rapier Agency, Limited, has been incorporated, with capital stock of \$5000, by Thomas G. Rapier, president; Thomas G. Rapier, Jr., vice-president; Edward S. Rapier, secretary and treasurer.

MARYLAND.

Baltimore—Chartered: The Gilbert & Wilkins Manufacturing Co., to manufacture anchors for tombstones, by John W. Wilkins, Winfield C. Gilbert, William G. Towers and others; capital stock \$25,000. Company's factory at Union Bridge will be removed to Baltimore. Address company, care of W. G. Towers, Manufacturers' Record Building, Baltimore.

Baltimore—Shoe Company.—The Baltimore Cash Shoe Co. has been incorporated (in Delaware), with capital stock of \$100,000, to manufacture shoes, leather, etc.

Emmitsburg—Wrapper Factory.—Mr. Walderman will establish a wrapper and shirt-waist factory.

Frostburg—Electric-light Plant.—The city council will consider the building of a \$20,000 electric-lighting plant. Address "The Mayor."

St. Michaels—Water Works.—C. S. York of Baltimore, Md., will make surveys and estimates for construction of water-works system at St. Michaels. Address "The Mayor."

Washington, D. C.—Telephone Company.—John D. Langhorne, O. G. Staples, J. A. Baker, T. A. Lambert and others have incorporated the Columbia Telephone Co.

Washington, D. C.—Newspaper Syndicate. The American Newspaper Syndicate has been incorporated, with capital stock of \$5,000,000, by Martin Kastle, E. Kastle, Thos. Wilkinson, Joseph T. Wilkinson and others.

MISSISSIPPI.

Enterprise—Cotton Mill.—Efforts are being made for the organization of a company to erect cotton mill. Address John Kamper.

Greenville—Sewerage System.—Caboury & Hebron have secured contract for construction of Greenville's proposed sewerage system.

Jackson—Broom and Handle Factory.—J. C. Toole will erect a \$20,000 factory for brooms and all kinds of wooden handles.

Moorhead—Cotton Mill.—The Moorhead Cotton Mills, reported recently as incorporated, has let contract for erection of building to accommodate 5000 spindles; power plant will be for steam requiring 300-horse-power engine; plans, etc., by Rhode Island architects. Address C. H. Pond for further particulars.

Vicksburg—Furniture Factory.—The Memphis (Tenn.) Furniture Manufacturing Co. has purchased the Vicksburg Furniture Factory for \$140,000 and will enlarge and operate it.

Vicksburg—Pants Factory.—A. Rose, E. Freund, I. Knebel, H. B. Fishel and others have incorporated the Superior Pants Co. for the manufacture of pants, etc., with capital stock \$50,000.

Winona—Cotton Mill.—A company with capital stock of \$100,000 is being formed for erection of a cotton mill. Address Theo. Mendelsohn, secretary Young Men's Business League.

MISSOURI.

Carrollton—Mercantile.—D. B. Allen, D. D. Thomas, H. K. Rea and others have incorporated the Carrollton-New York Racket Store, with capital of \$7200.

Central City (postoffice at Cagle)—Lead and Zinc Mines.—W. S. Holman of New York city and others of that city have purchased the Shultz and Rabbit's Foot mines near Central City and will develop them; improvements will be made and output materially increased; Col. S. G. Evans, local manager.

Joplin—Lead and Zinc Mines.—The Security Lead & Zinc Mining Co. has been incorporated, with capital stock of \$20,000, by F. B. Wemple, T. F. Hancock, R. J. Wilson and others.

Joplin—Lead and Zinc Mines.—The Bristol & Joplin Lead & Zinc Mining Co., with principal office in Corporation Trust Co. Building, Jersey City, N. J., has been incorporated to conduct general mining business, with capital stock of \$100,000, by W. W. Gooch, Wilson R. Yard, R. H. Delehanty and Kenneth K. McLaren. Address Jersey City office.

Joplin—Lead and Zinc Mines.—The Middlesex Land & Mining Co. has been incorporated, with capital stock of \$100,000, by J. H. Dangerfield, F. J. Hart, H. E. Dangerfield and others.

Kansas City—Manufacturing.—Chartered: The Olson Manufacturing Co., with capital stock of \$5000, by N. B. Olson, H. W. Loose and J. S. Loose.

Kansas City—Land Improvement.—The Fremont Land Improvement Co. has been incorporated, with capital stock of \$500,000, by Hale Hoeden, O. M. Mosman and C. D. Clingan.

Kansas City—Mining.—Chartered: The Viola Mining & Milling Co., by Patrick Moore, J. B. McGowan, W. G. Stevens and others, with capital stock of \$100,000.

Kansas City—Sterling-silver Factory.—A. F. Tucker of the Tucker & Parkhurst Co. (silversmiths) of Ogdensburg, N. Y., is investigating with a view to establishing a factory in Kansas City.

Kansas City—Lead and Zinc Mines.—The

Helmet Mining Co. has been incorporated, with capital stock of \$25,000, by K. B. Armour, L. E. James, C. S. Pitkin and others.

Kansas City—Grain Company.—J. L. Morrison, F. J. Poor, R. T. Morrison and others have incorporated the Morrison Grain Co., with capital stock of \$10,000.

Kansas City.—The Pure Food Co. of Newark, N. J., is reported as having purchased site for \$5000 at Kansas City and to establish a plant for treating fresh eggs, reducing their contents to powder by a patent process.

St. Louis—Mercantile Agency.—Chartered: The Sprague Mercantile Agency, by R. B. Grant and others; capital stock \$50,000.

St. Louis—Lumber Company.—Chartered: The Mosberger-O'Reilly-Gram Lumber Co., with capital stock of \$12,000, by Jacob Mosberger, Richard J. O'Reilly and Frank J. Gram.

St. Louis—Tobacco Factory.—William S. Logan, previously reported as having purchased buildings and ground for \$90,000, and as purchasing machinery for large tobacco factory, will, with others, incorporate the M. C. Wetmore Tobacco Co., with capital stock of \$1,250,000. Moses C. Wetmore will be president; P. J. Heuer, vice-president; John Scullin, treasurer, and W. S. Logan, superintendent. Factory will have capacity of 50,000 pounds plug tobacco per day, which can be increased as business demands to 100,000 pounds per day.

St. Louis—Lumber Company.—Chartered: The Kirch-Eckhardt Lumber Co., with capital stock of \$10,000, by H. Kirch, F. Kirch and P. Eckhardt.

St. Louis—Paper Company.—The Graham Paper Co. has been incorporated, with capital stock of \$100,000.

St. Louis—Shoe Company.—The Goodfellow Shoe Co. has been incorporated, with James S. Goodfellow, president; Philip A. Wilson, vice-president; H. B. Goodfellow, treasurer, and Wallace V. Wilson, secretary, to succeed the Kelley-Goodfellow Shoe Co.; capital stock \$200,000.

St. Louis—Lead Mines.—The Mississippi Valley Lead Co. has been incorporated, with capital stock of \$100,000, by W. R. Eidsom, C. F. Kelley, W. C. Huber and others.

St. Louis—Gas Works.—The Laclede Gas-Light Co. will hold a meeting January 22 to vote on a proposition to increase the capital stock from \$10,000,000 to \$11,000,000 by the issue of \$1,000,000 of common stock, the proceeds of which will be used for extensions and improvements.

St. Louis—Lead and Zinc Mines.—Chartered: The Mineral Springs Mining Co., with capital stock of \$100,000, by T. T. Lewis, J. W. McDonald, W. T. Hartstick and others.

St. Louis—Lead Mining.—The Big River Lead Co. has been incorporated by Leopold Schmalz, Walter Schmalz, H. J. Cantwell and others, with capital stock of \$200,000.

St. Louis—Heating Company.—H. T. Urbauer, W. T. Atwood and William B. Thompson have incorporated the Urbauer-Atwood Heating Co., with capital stock of \$60,000.

St. Louis—Drug Company.—The Enderle Drug Co. has been incorporated, with capital stock of \$5000, by E. W. Enderle, Frank Spurr, George L. Kearney and others.

St. Louis—Dairy.—Chartered: The American Dairy Co., with capital stock of \$25,000, by Joseph Walter, Albert Ahland and others.

St. Louis—Label Works.—Chartered: The Missouri Label Works, with capital stock of \$3000, by M. A. Sabor, L. A. Sitz and T. F. Hagenow.

Webb City—Lead and Zinc Mines.—The Cordell Lead & Zinc Co. has been incorporated, with capital stock of \$300,000, by Cordell Humphreys, C. W. Walbridge, C. R. Shipman and R. M. Higgins.

NORTH CAROLINA.

Brevard—Knitting Mill.—W. P. Petter, 440 Diamond street, Pittsburgh, Pa., contemplates establishing a knitting mill to manufacture hose and underwear at Brevard.*

Charlotte—Electrical and Engineering Company.—S. B. Alexander, Jr., will organize a stock company to engage in an electrical and engineering business.

Charlotte—Hardware Company.—The Southern Hardware Co. has been incorporated by A. C. Hutchinson, Thomas W. and C. A. Dixon and C. E. Hutchinson; capital stock \$5000, with privilege of increasing to \$25,000.

Charlotte—Saw-mill, Planing Mill, etc.—The Piedmont Lumber Co. has been organized by M. L. Carson and others, with capital stock of \$10,000, for the erection of saw-mill, planing mill and dry-kilns with daily capacity of 30,000 feet.

Danbury—Cotton Mills.—The American Development Co. has, it is reported, purchased

the Piedmont springs near Danbury, also water-power, with a view to establishing one or more large cotton mills. B. N. Duke and George W. Watts, both of Durham, N. C., can probably be addressed for information, as they are reported as interested.

Dunn—Water-power Development and Cotton Mill.—Messrs. John F. Wiley and B. N. Duke of Durham, N. C., and their associates propose to develop the extensive water-power of Smiley Falls in Harnett county, near Dunn; also erect a cotton factory to cost probably \$500,000 to utilize the power developed; when interviewed by a representative of the Manufacturers' Record Mr. Wiley declined to give any details as to the contemplated enterprise.

Durham—Bag and Cotton Mill.—The Golden Belt Manufacturing Co. (manufacturer of bags) has reorganized, with T. B. Fuller, president; George W. Watts, vice-president; R. B. Fuller, secretary; company has purchased site and will erect a cotton mill of 1500 spindles and 400 looms to make material for bags.

Durham—Clothing Factory, Cigar, etc. Factory.—The Durham Real Estate, Mercantile & Manufacturing Co., incorporated by R. B. Fitzgerald (colored) of Durham and Dr. D. A. Lane of Washington, D. C. (colored), will begin a general merchandise business and the manufacture of cigars, cheroots, and later establish clothing factory.

Greensboro—Telephone System.—Franchise has been granted to the American Telegraph & Telephone Co. for construction of lines between Greensboro and Durham and between Charlotte and Greensboro.

Greensboro—Lumber Mills.—W. W. Whyte of Welch, W. Va.; John M. Stivers and John W. McNairy of Greensboro have incorporated the Greensboro Lumber Co., with capital stock of \$10,000, to succeed the Greensboro Sash & Blind Co.

Lowell—Cotton Mill.—Efforts are being made for the organization of a company (as lately reported) for erection of a 3000-spindle cotton mill. Address S. M. Robinson.

Mooresville—Cotton Mill.—Efforts are being made for the organization of a \$75,000 stock company to erect cotton mill; W. M. Lentz is interested.

Raeford—Cotton Mill.—Surveys have been made and the water-power of Rockfish creek investigated with a view of establishing a cotton mill near Raeford. Those interested are J. W. McLaughlin, J. B. Upchurch, Nell Blue, John Blue and others.

Raleigh—Drug Company.—The King Drug Co. has been incorporated, with W. H. King, president; J. E. Johnson of New Brunswick, N. J., vice-president, and B. S. Jerman, secretary and treasurer, to conduct wholesale and retail drug business; stores already established.

Tarboro—Peanut Factory.—The Progressive Association is discussing the question of organizing a peanut factory. Address H. L. Staton of the association.

Tarboro—Flour Mill.—W. L. Stallings will establish a roller-process flour mill.

Wadesboro—Electric-power Plant.—Northern parties are negotiating for the purchase of the Grassy Islands water-power, and if they secure control of the property will erect a plant for the transmission of electric power to Wadesboro, Rockingham and other points.

Winston-Salem—Gas Plant.—The Winston-Salem Gas & Lighting Co. (previously reported as having received franchise and as to erect a \$50,000 gas plant) has purchased all necessary machinery and plant will be in operation about May.

Wrightsville—Canning and Broom Factory.—O. M. Fillyaw of Wilmington, N. C., will remove his canning and broom factory to Wrightsville.

SOUTH CAROLINA.

Charleston—Cotton Mill.—There has been talk in Charleston of organizing a company for the establishment of a mill to spin fine yarns from Sea Island cotton. Secretary Chamber of Commerce can probably give information if true.

Charleston—Cannery.—George Potts, proprietor of the Appomattox Cannery at Petersburg, Va., is investigating with a view of removing his plant to Charleston.

Dillon—Cotton Mill.—The Dillon Cotton Mills has been incorporated, with capital stock of \$150,000, by Charles Iseman of McColl; C. Warren Davis of Augusta, Ga.; J. W. Dillon, H. P. Price, A. B. Surles of Dillon and others. Address J. W. Dillon.

Spartanburg—Cotton Mill.—A \$200,000 company is being organized for erection of a cotton mill. John A. Law is interested and can be addressed.

TENNESSEE.

Cedar Fork—Flour Mill and Saw-mill.—G. H. Kesterson is erecting flour mill and saw-mill, using two large turbine wheels.

Chattanooga—Cast-iron Pipe Works.—The United States Cast-Iron Pipe Co. will discontinue the manufacture of cast-iron piping at the old Giles Pipe Works; will remodel buildings and supply with new machinery, including turning lathes, cranes, etc.; Adams & Schneider have received contract for reconstruction; estimated cost \$25,000.

Chattanooga.—Chester Watkins, F. F. Wiehl and associates have purchased the plant of the Chickamauga Foundry & Machine Co. for \$10,000, and will organize a company to operate it.

Chattanooga—Bottling.—The Coca Cola Bottling Co. has been incorporated, with capital stock of \$5000, by J. B. Whitehead, E. Y. Chapin, Hiram Pearce and others.

Clinton—Timber Lands, Saw-mill, Iron-ore Mines, etc.—L. H. Beyerle, E. L. De Camp and Ira J. Ryerson of Goshen, Ind., have purchased 3000 acres of timber lands near Clinton and organized the Northern Indiana Lumber Co. to erect saw-mill either at Clinton or in Knoxville; company is also reported as having acquired 5000 acres of timber lands between Monterey and Harriman; this property is also reported to have lead and iron ore, which will be developed.

Ducktown—Iron-ore Mines.—It is reported that the Virginia Iron, Coal & Coke Co., Weston Graham, general superintendent, Bristol, Va., will mine from the iron-ore properties controlled in Ducktown about 1000 tons per day.

Elk Valley—Coal Mines.—Dr. C. L. Baird and others have purchased 1400 acres of coal lands near Elk Valley, and will develop at once, probably organizing a new company for the purpose.

Humboldt—Cotton Mill.—C. H. Ferrell, H. C. Burnett, J. R. Jarrel and R. L. Bearce have organized the \$100,000 company reported last week to be formed for the erection of a 500-spindle mill; will charter as Humboldt Cotton Mills.

Humboldt—Threshing-machine Works.—It is reported that a \$25,000 stock company is being formed to manufacture the patent threshing machine of Steelman & Parish.

Johnson City—Planing Mill.—The Empire Lumber & Manufacturing Co. has been incorporated with W. H. Cox, president; D. J. Hickman, secretary-treasurer, and W. P. Cooper, general manager; has leased building and will install planing-mill machinery.

Knoxville—Blueing Factory.—Chas. M. Cowan and R. W. McCargo will establish a factory for the manufacture of wash blueing and other chemical products.

Knoxville—Coffin Factory.—The Knoxville Coffin Co. will expend \$5000 in enlarging its plant; main building will be extended and capacity increased one-third; two sites, 50x200 feet each, have been purchased, on which large dry-kilns will be erected; Arthur G. Mann, president.

Knoxville—Iron Furnace.—It was reported during the week that Henry V. Maxwell, J. T. McTeet, J. T. Wilder and others had been appointed a committee to solicit subscriptions to the capital stock of a proposed iron furnace, and it is further rumored that the Virginia Iron, Coal & Coke Co. of Bristol, Va., is interested in the local movement and will take at least half of the local stock in a \$200,000 furnace. W. B. Lockett, president of the Chamber of Commerce, can give information.

Lone Mountain—Flour Mill.—John L. Morrison is completing a flour mill of forty barrels capacity.

Mt. Pleasant—Acid Plant.—L. L. Frierson will establish a plant for extracting from oak wood tannic acid; also acids suitable for dyeing purposes.

Nashville—Flour Mill, Elevator, etc.—J. H. Horthor Fall, trustee, has purchased the flour mill and elevator of the Model Mill Co. for \$20,000, and will put it in operation.

Tazewell—Grist Mill, Saw-mill, Shingle, etc., Mill.—Francisco & Leabow are erecting a saw and grist mill, and contemplate installing machinery to manufacture shingles, insulator pins and shuttles.*

Tazewell—Saw-mill.—A. G. Johnson is erecting saw-mill.

Winchester—Furniture and Pulley Works. Thomas Long of Kansas City, Mo., will organize a company with capital stock from \$50,000 to \$100,000 for the establishment of furniture and pulley works in Winchester.

TEXAS.

Arlington—Mercantile.—Chartered: The Rankin-McKnight Co., with capital stock of \$2500, by E. C. Rankin, R. W. McKnight and E. E. Rankin.

Atlanta—Cotton Mill.—Efforts will be made for the establishment of a cotton mill. Address J. W. Fletcher.

Austin—Water Works, etc.—The question of installing an auxiliary steam pump and the advisability of buying the old water works is being considered. Address Superintendent Patterson, Mayor McCall or Alderman Glass.

Beaumont—Irrigation System.—The Beaumont Irrigation Co. has closed contract for pumping machinery to increase its capacity one-third; new pump will have 24-hour capacity of 43,200,000 gallons.

Big Springs.—Chartered: The Big Springs Opera-House Co., with capital stock of \$5000, by J. I. McDowell and others.

Dallas—Piano and Organ Company.—The Rush & Gerts Piano & Organ Co. has been incorporated, with capital stock of \$20,000, by W. H. Bush, W. L. Bush, B. F. Bush of Chicago, W. H. Wray of Dallas and others.

Franklin—Broom Factory, Mattress Factory, etc.—The Franklin Broom Factory, Limited, reported lately as incorporated, has its plant in operation and intends to add machinery soon for manufacture of moss and cotton mattresses. Address H. B. Hurt, secretary.*

Galveston—Cold-storage Plant and Fertilizer Factory.—The Redsnapper Fishing Co. has secured a two-story warehouse, 85x110 feet, and will install refrigerating plant to cost \$50,000; there will be four storage-rooms, each of which will have capacity for twenty-five tons of frozen fish; it is also proposed to install two freezers, one with capacity of 3000 pounds and the other of 12,000 pounds; it is also reported that a fish-fertilizer plant will be installed.

Groesbeck—Hardware and Furniture Company.—Chartered: The Llover-Nussbaum-Scharff Company, with capital stock of \$10,000, by D. A. Oliver, S. Nussbaum and L. Scharff.

Palestine—Electric-light Plant.—The International & Great Northern Railroad Co., L. Trice, general superintendent, Palestine, contemplates installing an electric-light plant in connection with its shops, but no decision has been reached.

Richmond—Cotton Mill.—Efforts will be made to organize a company to erect a cotton mill. Address C. A. Beasley or J. R. Farmer.

Rockdale—Coal Mines.—A. I. Worley has purchased several tracts of coal lands and will develop, as lately reported.*

San Antonio—Saddlery and Harness Factory, etc.—Mrs. Caroline Kampmann will erect a four-story-and-basement business house 93x157 feet, constructed of granite and brick, to contain electric lights, steam heat, fire-escapes, etc.; building will be occupied by L. Frank & Co. for manufacture of saddles, harness, etc., and by D. J. Woodward & Co., also for manufacturing purposes.

San Antonio—Cotton Mill.—The Business Men's League is promoting the organization of a cotton-factory company.*

Texarkana—Opera-house Company.—The Hardin Opera-House Co. has been incorporated, with capital stock of \$25,000, by W. C. Hardin, H. C. Hynson and S. Hardin.

Tyler—Machine Shop and Roundhouse.—The Cotton Belt & Northern Railroad Co. is erecting machine shop and roundhouse 100x160 feet to cost \$25,000; Wm. Carlisle, general manager, Atchison, Kans.

Waco—Canning Factory.—W. M. McCollum, B. B. Boatwright and J. Nall (operating cannery at Bethany, Mo.) are investigating with a view to establishing a plant in the South, probably at Waco.

Whitney—Cotton Mill.—Dr. W. L. Moore and others are organizing a \$25,000 stock company for erection of a cotton mill.

Wills Point—Saddlery Company.—Chartered: The Queen City Saddlery Co., with capital stock of \$3400, by R. E. Blanks, W. E. Easterwood and L. P. Gibson.

VIRGINIA.

Alexandria—Spoke Factory.—Carson & Co. of Front Royal, Va., have leased and will operate the plant of the Mt. Vernon Spoke Co. at New Alexandria.

Big Island—Pulp and Paper Mills.—It is reported that a syndicate of Richmond men will acquire the plant of the Bedford Pulp & Paper Co. at Big Island and will operate it in connection with and as a feeder to the plant of the James River Falls Paper and Pulp Mills to be erected at Richmond; the present output is six tons per day, which, it is understood, will be increased at once. LeRoy E. Brown of J. Thompson Brown & Co., Richmond, made the deal and can give information.

Big Stone Gap—Iron Furnace.—The Big

Stone Gap furnace of the Union Steel & Chain Co., E. C. Harper, president, Empire Building, New York, previously reported as being altered and repaired, will soon be ready to blow in.

Lynchburg—Cold-storage Plant.—W. B. Quinn and associates have petitioned the city council for authority to operate cold-storage plant.

Lynchburg—Gas Works.—T. H. Shelton of Philadelphia, Pa., and D. R. Apperson of Staunton, Va., reported recently as arranging for the establishment of gas works in Lynchburg, have, with others, petitioned the city council for right to construct and operate such a plant.

Lynchburg—Carriage Factory.—The Harris Buggy Co. has been incorporated, with W. K. Smiley, president; F. C. Harris, vice-president; S. W. Drinkard, secretary and treasurer, for the manufacture of buggies, wagons, etc.; capital stock \$5000.

Norfolk—Steamship Company.—The Norfolk & West Indies Fruit & Steamship Co. has been incorporated, with George H. Dawes of Norfolk, president; Alex. B. Bullock of Baltimore, Md., vice-president; B. Bruce Sally of Newport News, secretary and treasurer, to operate line of steamships between Norfolk and West Indian points; capital stock \$100,000.

Radford—Iron Furnace.—William Poulton of Youngstown, Ohio, is arranging to blow in the charcoal furnace of the Radford Iron Co.; furnace will be changed from charcoal to coke plant and capacity increased from twenty-five to fifty tons per day.

Richmond—Locomotive and Machine Works.—The Richmond Locomotive and Machine Works will erect an additional boiler shop, which will give the company a capacity of 600 boilers per year.

Roanoke—Shoe Company.—The Snyder Steel Shoe Co. has been incorporated, with W. H. Stoll, president, and John M. Snyder, secretary and treasurer; capital stock \$25,000.

Stephens City—Lime Works and Barrel Factory.—The M. J. Grove Lime Co. of Lime Kiln, Md., has leased a large tract of land at Stephens City and will probably establish a plant for manufacturing lime from the limestone deposits on the property.*

Williamsburg—Laundry.—The Williamsburg Steam Laundry Co. has been incorporated, with capital stock of \$5000, by B. D. Peachy, J. B. C. Spencer, R. L. Spencer, R. R. Cole and others.

Winchester—Telephone System.—The Winchester Telephone Co. (which was reported during the week as incorporated) is an established company, which has increased its capital stock for the extension and improvement of its service; R. T. Barton, president.

WEST VIRGINIA.

Belington—Coal and Coke Company.—The Valley Coal & Coke Co. has been incorporated, with an authorized capital of \$1,000,000, by Floyd Teter of Belington; Fred O. Blue and Charles F. Teter of Philippi, W. Va.; N. F. Arnold and J. C. Williams of Ridge-way, Pa.

Belmont—Plate Mill.—Plans are being drawn by a Pittsburg (Pa.) civil engineer for the third plate mill previously reported to be erected at Belmont by the Wheeling Iron & Steel Co.; company now operates two plate mills at Belmont, each containing three heating furnaces, and the new mill will also contain three furnaces.

Centralia—Lumber Company.—Joseph M. and Henry Brokerhoff of Bellfonte, Pa.; Harry K. Paulhanns of Centralia and others have incorporated the West Branch Lumber Co., with authorized capital of \$150,000.

Charleston—Coal Company.—The Glade Creek Coal Co. has been incorporated, with capital stock of \$5,000,000, by C. E. Platt, F. Maurer, E. Daly, W. J. Jackson and A. T. Dukes, all of Philadelphia, Pa.

Charleston—Cycle-supply Company.—H. B. Smith, S. L. Flourney, G. B. Price, L. A. Barter and R. P. Flocurrency are the incorporators of the American Auto-Cycle Supply Co., reported recently as incorporated.

Clarksburg—Coal Mining.—The Phoenix Company has been incorporated, with authorized capital of \$500,000, by L. S. Horner, W. W. Willis, C. R. Ballie and others.

Elkins—Coal and Timber Lands, Coke Ovens, etc.—The West Virginia Central & Pittsburgh Railway Co. has increased its capital stock to \$10,000,000 for the purpose of purchasing the entire properties, consisting of 100,000 acres of coal and timber lands, of the Davis Coal & Coke Co.; capacity of mines is about 5000 tons per day, and about 800 tons of coke, and it is proposed under the consolidation to increase to 8000 tons of coal and 1200 tons of coke per day; company has

about 700 coke ovens, which, it is stated, will be increased to 1000; Henry G. Davis of Elkins, W. Va., is president of the consolidated company; Stephen B. Elkins of Elkins, vice-president; C. L. Bretz of Cumberland, Md., general manager railroad department.

Fairmont—Coal and Coke Company.—Chartered: The Hite Coal & Coke Co., with authorized capital of \$100,000, by R. M. Hite of Fairmont, Joseph R. Tildall and others of Philadelphia, Pa.

Grafton—Mercantile.—L. P. Souders, W. P. Hendrickson, W. E. Clayton are among the incorporators of the Hendrickson Company, reported recently.

Kenova—Packet Company.—The Sandy Packet Co. has been incorporated, with authorized capital of \$100,000, by F. M. Wellman, J. M. Kirker, S. P. Palton and others.

Lester—Mining and Milling.—The Arkansas Company has been incorporated by J. A. Robertson of Monterey, Mexico; J. G. Ladd of Providence, R. I.; E. Moir of Marcello, N. Y., and others, with capital stock of \$3000.

Mercer—Water Works.—Peter A. Pugh of Fairview, W. Va., and others have incorporated the South Side Water Works Co. with authorized capital of \$500,000.

Morgantown—Oil and Gas Company.—Chartered: The Tenderfoot Oil & Gas Co. by J. H. Stewart, E. C. Frame, James L. Frazer and others; authorized capital \$250,000.

Parkersburg—Oil Company.—The Home Oil Co. has been incorporated by E. A. Henry, P. E. Calhoun, E. M. Condon and others, with an authorized capital of \$100,000.

Piedmont—Coal Mines.—It is reported that Baltimore (Md.) capitalists are forming a company to mine coal on the property of A. J. Merrill near Piedmont.

St. Marys—Telephone Company.—The St. Marys Union Telephone Co. has been incorporated, with capital stock of \$2000, for constructing telephone line from St. Marys to Union Mills; incorporators, J. C. Roby of Delong, J. K. Roby and C. P. Craig of St. Marys and others.

Terra Alta—Woolen Mill.—J. W. Rigg & Son are rebuilding their woolen mill recently destroyed by fire.

Wheeling—Cigar-box Factory.—W. P. Robinson of Wheeling, Morris Brown, Max Heinslick and others of New York have incorporated the Brown Improved Cigar Box Co. for the manufacture of a patent cigar box; subscribed capital \$500,000; authorized capital \$5,000,000.

Williamson—Hardware Company.—Chartered: The A. H. Beall Hardware Co., by A. H. Beall, M. M. Bronson, J. K. Roach and others; authorized capital \$30,000.

BURNED.

Alexandria, La.—Col. Josiah Chambers' ginhouse on Bayou Rapides; loss about \$5000.

Fayetteville, N. C.—The Hickson Lumber Co.'s plant (leased from H. A. Rankin & Co.) and the novelty works of H. A. Rankin & Co.; estimated loss \$8000.

Grandview, Texas.—Freeman & Sons' cotton gin at Conley; loss about \$6000.

Little Rock, Ark.—The Little Rock Wheelbarrow Manufacturing Co.'s plant; estimated loss \$4000.

Scottsville, Ky.—Love, Boyd & Co.'s planing and saw mills; estimated loss \$10,000; main office, Nashville, Tenn.

Smithfield, N. C.—Woodward Tobacco Co.'s stemmery.

St. Augustine, Fla.—The St. Augustine Ice Works, J. W. Simmons, proprietor; estimated loss \$45,000.

BUILDING NOTES.

Augusta, Ga.—Store Building.—J. B. White will erect new store building on site of his recently burned building.

Baltimore, Md.—Hotel and Cottages.—E. M. Noel has contract for erection of four-story hotel of D. W. Dwyer, for which Wyatt & Nolting prepared plans; building will be of stone and frame and cost \$50,000; Mr. Noel has also contract from Mr. Dwyer to erect six two-and-one-half-story cottages. Col. B. H. Wharton contemplates erection of twelve additional cottages. H. Clay Tunis contemplates erection of fourteen additional cottages. Frank K. Carey will erect an \$8000 cottage. R. B. Tippett will erect five cottages to cost \$5000. Stuart A. Trench of New York will erect two cottages to cost \$5500. These improvements are all at or near Walbrook, Baltimore.

Birmingham, Ala.—Apartment-house.—Frank P. O'Brien will erect a three-story brick and stone apartment-house.

Charlotte, N. C.—Residence.—Hayden,

Wheeler & Schwend, Charlotte and Atlanta, Ga., have made plans for residence for C. E. Stevenson.

Columbia, S. C.—City Hall and Opera-house.—T. H. Gibbes, John A. Willis and Mr. Rawis, building committee, will receive proposals until January 5, at city clerk's office, for erection of new city hall and opera-house according to plans and specifications prepared by Frank P. Milburn of Charlotte, N. C.; plans and specifications on file with city clerk and at architect's office after December 15; certified check for \$500 required; also bond in \$15,000 for performance of contract.

Concord, N. C.—Residence.—Hayden, Wheeler & Schwend, Charlotte, N. C., and Atlanta, Ga., have prepared plans for residence for J. W. Cannon.

Durham, N. C.—Store Building.—R. H. Wright has awarded contract to Christian & Houston for erection of two stores of pressed brick with plate-glass fronts.

Hampton, Va.—Bank Building.—Proposals are invited for the erection and completion of superstructure of office building for Bank of Hampton. Plans and specifications can be seen at Holtclaw Bros., architects. Bids will be opened December 20. Certified check of \$1000 must accompany each bid, and bond for 25 per cent. of contract price will be required; J. W. Rowe, president.

Jacksonville, Fla.—Auditorium.—W. N. Emery is having plans made for one-story auditorium, 130x100 feet, as an addition to Freebel Academy; cost \$7500.

Jacksonville, Fla.—Theater.—A. D. Rhodes of Atlanta, Ga., has purchased site in Jacksonville for \$15,000 and will erect a \$75,000 theater. A stock company will probably be organized.

Jacksonville, Fla.—Warehouses.—The Florida Central & Peninsular Railroad Co. has permit for erection of three warehouses—a two-story brick 140x90 feet to cost \$18,000, a one-story brick 37x33 feet to cost \$13,500 and a two-story corrugated-iron warehouse 40x90 feet to cost \$3000; D. E. Maxwell, general manager.

Joplin, Mo.—Flats Building.—H. L. Spaulding has completed plans for flats building 115x70 feet to be erected by A. O. Nichols and W. S. Crane.

Kansas City, Mo.—Mercantile Building.—Thomas H. Swope will erect a seven-story mercantile building to cost about \$150,000.

Kansas City, Mo.—Warehouse.—The McCormick Harvesting Machine Co. of Chicago, Ill., has purchased site in Kansas City for \$50,000 and will have plans made for a five-story warehouse with capacity for 750 carloads of harvesting machines.

Knoxville, Tenn.—Store and Office Building.—G. W. Pickle has purchased site for \$8500 and will erect a four-story store and office building.

Luray, Va.—Orphanage.—The American Orphanage Association (Rev. H. M. Wharton, Baltimore, Md., president) is having plans made for a three-story stone building 100x50 feet to cost \$25,000.

Macon, Ga.—Y. M. C. A. Building.—Young Men's Christian Association will erect three-story building, including gymnasiums, baths, etc., to cost \$18,000. Address "The Secretary."

Memphis, Tenn.—School Building.—The city will erect \$9000 school building, two stories, hot-air heating, slate roof, stone trimmings, eight rooms, seating capacity 300 and assembly hall with seating capacity for 400; E. B. Boyd, clerk.

Natchez, Miss.—School Building.—The city will hold an election on December 12 to vote on the issuance of \$25,000 of school bonds. Address W. G. Benbrook, mayor.

Newport News, Va.—Schools.—School board committee will petition legislature for authority to issue \$52,000 of bonds for school purposes; \$40,000 to be used for erection of two proposed new school buildings.

Newport News, Va.—College.—The Old Point College Co. has purchased site for \$12,000 and will erect a \$75,000 college building. Brother Alexis of St. Joseph's Academy, Baltimore, Md., can be addressed.

Selma, Ala.—Cottages, etc.—Estelle Cotton Mills Co. will erect thirty two and three-room frame cottages and a 50x70-foot frame warehouse; R. H. Mabry, secretary; contracts about closed.

St. Louis, Mo.—School.—The lowest bidders on the erection of the Eugene Field School building were Gillick Bros. at \$7,500.

Tupelo, Miss.—Store Building.—C. W. Troy

Atlanta, C. R. has contract for erection of two-story store building to cost \$5000.

Washington, D. C.—Warehouse.—The Union Trust & Storage Co. will be incorporated, with capital stock of \$1,200,000, and will erect large warehouse; address at Willard Hotel Building, Fourteenth and F streets.

Washington, D. C.—Buildings.—Edward J. Schneider will erect three-story brick residence, plans prepared by J. H. McIntyre; a three-story-and-basement addition will be built to Sibley Hospital; John O. Johnson will erect an apartment-house of sixteen suites of three rooms each; William J. Palmer will erect twelve three-story dwellings of brick and Hummelstown stone, mansard roof, steam and hot-water heat, etc., cost \$80,000.

Winchester, Va.—City Hall.—At a meeting of the city council State Senator S. Lucien Lupton was authorized to petition the legislature to permit the city of Winchester to issue \$30,000 in bonds for the Rouss City Hall; proposed building will be three stories high and cost \$60,000; the plans of Frank H. Jackson of Washington, D. C., have been adopted. Address "The Mayor."

Cincinnati, Ohio—Factory Building.—Bullock Electric Manufacturing Co. is asking for bids on erection of 200-foot extension to main building.

RAILROAD CONSTRUCTION.

Railways.

Atlanta, Ga.—The Atlanta & Western Railway & Power Co. has asked for a franchise to build an electric line between Atlanta, Marietta and Douglasville, Ga. Among those interested are Eli West and Hon. W. J. Northern of Atlanta.

Baltimore, Md.—The Patapsco Park Railroad Co., which proposes building an electric line in the western suburbs, is negotiating with the Baltimore county commissioners to secure right of way. Among those interested are William F. Rogers of Baltimore and George W. Scott.

Birmingham, Ala.—A report is current that the Mobile & Ohio is making surveys for an extension to Birmingham from Centreville, a distance of forty-five miles. E. L. Russell, at Mobile, is president of the company.

Bluefield, W. Va.—Right of way is being obtained for the proposed McDonald & Bluefield Railroad to be built between the towns mentioned. L. Prichard of Charleston, W. Va., and Samuel Dixon of McDonald are interested in the enterprise.

Carrollton, Ala.—John T. Cochrane, general manager of the railroad being built between Carrollton and Reform, Ala., writes the Manufacturers' Record that the necessary rails have been purchased and work is being pushed as rapidly as possible. The line will be about ten miles long, and to be completed within the next six months. It will connect with the Mobile & Ohio at Reform.

Chattanooga, Tenn.—W. L. Albright, one of the promoters of the railroad between Chattanooga and Walhalla, S. C., writes the Manufacturers' Record that the estimated length of the road is 150 miles. Surveys are now being made and rights of way secured. The company is capitalized at \$3,000,000, and includes W. L. Albright, who is president; C. J. Wellborn, T. J. Hooper and others. The title of the road is the Missing Link Railroad.

Denison, Texas.—The Denison, Bonham & Gulf Railway Co. has filed a charter with the State authorities. It is capitalized at \$200,000, and proposes building a line about fifty miles long in Texas, which will reach Denison and Wolfe City.

Ducktown, Tenn.—The Virginia Coal, Coke & Iron Co. is reported as making arrangements to build a railroad line to connect with iron-ore property which it has recently secured in the vicinity of Ducktown.

Gainesville, Texas.—The Gainesville, McAlester & St. Louis Railroad Co. has filed its charter with the State authorities. It proposes building a line from Gainesville to a point on the Red river in Texas, a distance of thirty miles.

Gulfport, Miss.—S. S. Bullis, general manager of the Gulf & Ship Island Railroad Co., writes the Manufacturers' Record that it is building a branch from the main line, a distance of forty-one miles, to Laurel, Miss.; also to Columbia, a distance of forty-nine miles. It is calculated to have 250 miles in operation by May 1 next.

Huntington, W. Va.—A correspondent of the Manufacturers' Record writes that Messrs. Carpenter, Wright & Co. have secured the contract to build the section of the Guyandotte Valley Railroad between

Barbersville, W. Va., and a connection with the Chesapeake & Ohio near Huntington. The distance is thirty-eight miles. It is understood that a further extension of forty miles will be made as soon as the present contract is completed. J. L. Caldwell of Huntington is president of the railroad company.

Huntsville, Tenn.—It is understood that the Nashville, Chattanooga & St. Louis Railroad Co. has decided to construct a branch line from near Huntsville to a point two miles from the main line. J. W. Thomas, Jr., is manager of the company at Nashville, Tenn.

Joplin, Mo.—A. G. Jennings of Joplin has secured a contract to build about two miles of the extension of the Southwest Missouri Electric Line near Riceville.

Knoxville, Tenn.—The Ohio River, Tennessee & Carolina Railroad Co. has been chartered in Tennessee by William Kirby, W. B. Crenshaw and others to build a line in Tennessee from Jellico to the State line. The incorporators were formerly connected with the Black Diamond scheme, but it is understood have withdrawn from it.

Laurinburg, N. C.—The business men of Laurinburg are agitating the question of building a branch from Laurinburg to Gibson, N. C., to connect with the Atlantic Coast Line. The branch will be about twelve miles long.

Lexington, Ky.—Work has begun upon the extension of the Lexington & Eastern Railroad from Jackson into Morgan county, a distance of twenty-six miles. R. M. Broas at Lexington is general manager of the company. The branch is termed the Ohio & Kentucky Railway.

Moss Point, Miss.—It is understood that the Dantzler Lumber Co. has begun construction work upon its proposed railroad extending from timber lands it controls to Moss Point.

Nashville, Tenn.—The latest report concerning the Tennessee Central Railroad is to the effect that twenty-six miles of line have been completed and that rail has been secured to finish sixty miles now being graded. Jere Baxter, at Nashville, Tenn., is president of the company.

New Orleans, La.—The authorities of St. Bernard parish have given a franchise for the New Orleans City Railroad Co. to build its proposed electric line to Port Chalmette. R. M. Walmsley is president of the company.

Norfolk, Va.—A report is current that the Norfolk & Southern system is to be extended from Edenton, one of its present terminal points, to New Berne, a distance of eighty miles; thence along the coast to Georgetown, S. C., a distance of 189 miles, with a branch to Columbia, S. C. The extension would follow a route proposed several years ago for a line which was to extend from Savannah to Norfolk, following the Atlantic coast. M. K. King at Norfolk is general manager of the company.

Quanah, Texas.—The Acme Tap Railway Co. has been formed to build a branch one and one-half miles long from the Fort Worth & Denver Railroad to reach gypsum deposits.

Salem, Mo.—R. B. Canterbury and S. H. Henry of West Plains, Mo., are interested in the Salem & Missouri Railway Co., recently incorporated with \$1,000,000 capital stock.

Tuscumbia, Ala.—J. C. McLanahan and Charles K. Roberts are interested in the Tennessee & Alabama Mineral Railway Co., recently formed to build a line about seven miles in length from a point near Tuscumbia to a connection with the Nashville, Florence & Sheffield division of the Louisville & Nashville system.

Union, Mo.—Hon. A. H. Bolte and others are interested in securing an extension of the St. Louis, Kansas City & Colorado Railroad from Union west through mineral property in several adjacent counties. The line at present extends from St. Louis to Union, a distance of sixty miles, and is operated as a portion of the Santa Fe system. W. M. Mitchell at St. Louis is manager.

Union, S. C.—It is reported that a contract has been let to Messrs. Moore & Co. of Blacksburg, S. C., for the construction of the railroad between Union and Glenn Springs. T. C. Duncan of Union is at the head of the enterprise.

Waycross, Ga.—Surveys have been completed for the proposed extension of the Waycross Air Line from Douglas, Ga., to Fitzgerald. A portion of the rails have been secured and grading is in progress on a portion of the extension. J. E. Wadley, at Waycross, is president of the company.

West Point, Ga.—L. Lanier, president of the Chattahoochee Valley Railroad Co., writes the Manufacturers' Record that the

company intends to extend its railroad about forty miles, and is now securing material. Surveys are being made north and south about twenty-five miles in each direction.

Wheeling, W. Va.—J. A. Miller and Alfred Paull are interested in a proposed system of electric railroads to extend a distance of twenty-six miles, terminating at Wheeling.

Street Railways.

Savannah, Ga.—T. A. Richards and others are interested in a proposed electric line from the city to White Bluff, in the suburbs.

Tocon, Ga.—E. P. Simpson has secured a franchise to build a street-railway line in the town and suburbs. The railway will be operated by electric-power.

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

Air Shafts.—Proposals are asked until December 30 for sinking an air shaft 10x20 feet, 400 feet deep, for Davis Coal & Coke Co. at Henry, W. Va.; fuel, transportation and materials convenient; bids must be made per vertical foot of shaft, without classification of materials, and must include all timbering, shoring, packing, etc.; room for waste material will be provided. For further particulars address C. H. Latrobe, consulting engineer, Room 813 Merchants' Bank Building, Baltimore, Md.

Bell.—L. S. Curville, captain Pocahontas (Va.) Fire Company, wants to purchase a fire-alarm gong or bell.

Boiler and Engine.—See "Woodworking Machinery."

Boiler and Engine.—Waynesboro Electric-Light Co., Waynesboro, Va., is in the market for one 60-horse-power engine to run electric-light plant and two 40-horse-power boilers to use with engine; will consider second-hand machinery.

Boiler and Engine.—See "Woodworking Machinery."

Bricks.—Gude & Walker, 730 Equitable Building, Atlanta, Ga., want to purchase pressed bricks.

Broom Machinery.—Franklin Broom Factory, Limited, H. B. Hurt, secretary, Franklin, Texas, wants to correspond with manufacturers of broom and mattress machinery.

Buggy Manufacturers.—Samuel P. Potter, Inverness, Fla., wants to correspond with manufacturers of buggies, harness, etc.

Canning Machinery.—Varn & Hahn, Valdosta, Ga., want to correspond with manufacturers of canning machinery.

Corn Mill.—H. G. Blythe, Hendersonville, N. C., wants prices on shafting, segment gearing and corn-mill supplies.

Cotton-mill Machinery.—E. A. Greene, Box 66, Fort Gaines, Ga., wants to correspond with manufacturers of cotton-mill machinery.

Cotton Mill.—Business Men's League, San Antonio, Texas, wants estimates on cotton-mill equipments complete.

Distilling Apparatus.—See "Ice Plant."

Distilling Apparatus.—See "Turpentine Still."

Drills.—See "Lime-kilns Equipment."

Electric-light Plant.—See "Water Works."

Electric-light Plant.—J. W. Persons, Montgomery, Ala., will want bids in March for erection of \$35,000 electric-light plant for Opelika, Ala.; plant will have capacity for fifty-five 2000-candle-power arc and 3000 16-candle-power incandescent lights.

Electric-light Plant, etc.—Sealed proposals will be received by W. H. Lewis, mayor, Gastonia, N. C., until January 11 for constructing system of water works, electric-light plant and sewerage system and for furnishing materials; plans and specifications will be on file and copies may be obtained from John F. Love, town clerk, after December 12; usual rights reserved. J. L. Ludlow, Winston, N. C., engineer.

Elevator.—Gude & Walker, 730 Equitable Building, Atlanta, Ga., want to purchase electric elevator.

Elevator.—Chas. F. Felen, Old York road and Butler street, Philadelphia, Pa., wants a freight elevator, 4000 pounds or over.

Engine.—John M. Bailey, Rome, Ga., wants 25-horse-power gasoline engine, new or second-hand.

Engine.—Thomas H. Hewes, Oscar P. O., La., wants a second-hand gasoline engine of eight to ten horse-power.

Fire-department Equipment.—See "Bell."

Foundry Equipment.—Houser Bros. Brass Manufacturing Co., R. M. Houser, president, Louisville, Ky., wants to purchase routing machine for box dies, automatic screw and stub machine, stamping presses, filing machinery and rivet lathe; also wants to purchase old brass, copper, zinc or lead, and wants prices f. o. b. Louisville.

Gasoline Engine.—See "Engine."

Gasoline Engine.—See "Engine."

Grist Mill.—W. Patton, Jr., White Rock, Pa., wants a cob-breaker and chopping burr. Harness Manufacturers.—See "Buggy Manufacturers."

Heating System.—Proposals will be received until January 5 for the revision of low-pressure steam-heating system in courthouse, Newport News, Va. Plans and specifications can be seen at city clerk's office. Bids must be marked "Estimates for Heating" and addressed to J. A. Massey, city clerk. Usual rights reserved.

Holsting Machinery.—See "Lime-kilns Equipment."

Ice-factory Supplies.—J. A. Woodward, Edenton, N. C., is in the market for ice tools and delivery wagons; also for special ammonia pipe and fittings, two-inch.

Ice Plant.—Louis E. Vogel, 125 West Water street, Milwaukee, Wis., wants estimates on a complete ice plant of from twenty-five to fifty tons capacity, including distilling apparatus.

Ice Plant.—John E. Roller, Harrisonburg, Va., wants addresses of ice-plant manufacturers.

Knitting Mill.—W. P. Potter, 440 Diamond street, Pittsburg, Pa., wants estimates on knitting mill.

Lead Refinery.—Compania Minera y Afidadora, Monterrey, Mexico, wants bids on equipment of lead refinery, consisting of generators, motors, air compressors, furnace castings, wrought iron and steel work for same, floor castings, etc.; buildings have been contracted for; A. F. Schneider, engineer, 77 Pine street, New York city.

Lime-kilns Equipment.—M. J. Grove Lime Co., Lime Kiln, Md., will need rock drills, steam engines, hoisting machinery and iron-clad lime-kilns, including stacks about seventy-five feet high.

Machinery.—Sealed proposals for machinery for removing water hyacinths in Louisiana will be received at the United States engineer's office, custom-house, New Orleans, La., until January 12; information furnished on application; H. M. Adams, major, engineers.

Machine Tools.—Texas Gin & Machine Co., Dallas, Texas, wants to buy a 60-inch engine lathe with 60-inch faceplate to turn nine or twelve feet between centers, with taper attachment, new or second-hand; must be in good condition.

Mattress Machinery.—See "Broom Machinery."

Mattress Machinery.—J. K. Bean, Waynesville, N. C., wants prices on mattress and bed-spring machinery.

Mining Equipment.—William Hocker, Ocala, Fla., may possibly be in the market for phosphate-mining machinery.

Mining Equipment.—A. I. Worley, Rockdale, Texas, wants to correspond with manufacturers of coal-mining machinery.

Lumber.—Gude & Walker, 730 Equitable Building, Atlanta, Ga., want to purchase maple flooring.

Plow-handle Machinery.—See "Woodworking Machinery."

Railway Construction.—See "Air Shafts."

Railway Construction.—The Coal & Iron Railway (extension of the West Virginia Central) will open bids December 30 for the construction of two tunnels, profiles, specifications, etc., of which are on file at engineer's office; tunnel No. 1 to be located four miles from Elkins, W. Va., by county road, approximate length 1600 feet; tunnel No. 2, fourteen miles from Beverly, W. Va., by county road, approximate length 1000 feet; bidders must state when they will complete work, commencing same before February 1, 1900; usual contractors' bond required. In the spring of 1900 contracts will be let for forty-three miles of the railway; usual rights reserved. C. H. Latrobe, consulting engineer, Room 813 Merchants' Bank Building, Baltimore, Md.

Railway Equipment.—Chattahoochee Valley Railroad Co., L. Lanier, president, West Point, Ga., is in the market for 2000 tons of 56-pound rails.

Railroad Construction.—Carpenter, Wright & Co., Barboursville, W. Va., will sublet a large portion of construction work, largely scraper work.

Saw-mill.—T. S. Hoag, Box 42, New Berne, N. C., wants new or second-hand 60-horse-power horizontal stationary engine; 70 to 80-horse-power stationary boiler, with all attachments complete; band or circular sawmill to cut 15,000 or 20,000 feet daily; drag saw complete; board and slab resaw complete to cut twelve inches wide; double-surface pony planer and edger.

Shafting.—See "Corn Mill."

Shuttle-block and Bobbin Machinery.—See "Woodworking Machinery."

Spring Machinery.—See "Mattress Machinery."

Street Improvements.—The city of Plaquemine, La., will receive bids for street improvements and wants engineer to superintend same; M. L. Levy, city clerk.

Tunnels.—See "Railway Construction."

Turpentine Stills.—W. H. Gibbes & Co., Columbia, S. C., wants names of manufacturers of outfits for turpentine stills.

Water Works.—Estimates are being received on water works and electric-light plant for Hancock, Md. Address P. E. Dawson.

Woodworking Machinery.—See "Saw-mill."

Woodworking Machinery.—A. F. Johnson & Son, proprietors Carolina Veneer Works, Clinton, N. C., are in the market for single-surface planer.

Woodworking Machinery.—Mitchell & Dunlop, Boxwood, Va., want to correspond with manufacturers of plow-handle machinery.

Woodworking Machinery.—J. W. Miner, Ronda, N. C., wants to correspond with manufacturers of shuttle-block and bobbin machinery.

Woodworking Machinery.—J. K. Bean, Waynesville, N. C., wants prices on broom-handle and insulator-pin machinery.

Woodworking Machinery.—Francisco & Leabow, Tazewell, Tenn., want to correspond with manufacturers of machinery for making shingles, insulator pins, shuttles, etc.

Woodworking Machinery.—J. C. Patton, Trough, S. C., wants to correspond with manufacturers of hand shingle machines.

Woodworking Machinery.—R. C. Strother, West Union, S. C., wants description and prices of woodworking machinery for turning insulator pins and brackets for electric wires and for cutting threads on the same.

Woodworking Machinery.—Peters & Michael Manufacturing Co., Parkersburg, W. Va., is in the market for one pony double-head planer to plane both sides of lumber at once; also for a bolting saw to saw small logs up to fifty inches in length.

Woodworking Machinery.—High Point Furniture Co., Box 35, High Point, N. C., is in the market for second-hand 34 or 36-inch band saw, self-feeding short-log saw, pony planer, two automatic lathes, boring machine, mortising machine, chair-post chuck, radder, chair-round chuck, rip saw, double-trim saw, 60-horse-power boiler, 40-horse-power engine.

TRADE NOTES.

Electric-light Plant.—Gesner Williams of Demopolis, Ala., wants to sell an electric-light plant now in operation. See advertisement.

Knitting-mill Sale.—The Eagle & Phenix Mills of Columbus, Ga., is offering a knitting mill for sale. For particulars see advertisement.

Wants Location for Mill.—L. W. Gabel, Sequatchie, Tenn., wants a location for saw and planing mill and hoop factory. Inducements offered will be investigated.

Location for Woolen Mill.—James G. Aydelott, Tullahoma, Tenn., wants to develop a water-power situate near railroad, and suggests the property as admirable site for woolen mill. Write for particulars.

Selling Phosphate Lands.—South Carolina phosphate-rock lands still attract the attention of buyers. Maj. E. Willis of Charleston, S. C., has lately made large sales in this field. One sale was 4000 acres, closed with an Eastern syndicate.

Pine Timbered Lands.—The University of Mississippi is offering for sale its land and timber in Harrison and Jackson counties. The tract comprises about 20,000 acres, well

timbered and well located. R. B. Fulton, chancellor University of Mississippi, can be addressed for further particulars.

Location for Factories.—The Cartersville Land Co. invites correspondence from parties about to locate knitting mills or other factories. Cheap fuel and labor and a bountiful supply of cotton handy are among the advantages of Cartersville. Address G. H. Hall, secretary, for information.

The Barrett Lifting Jack.—The Duff Manufacturing Co. of Allegheny, Pa., announces the United States Circuit Court has made permanent the preliminary judgment given last July against Arthur O. Norton for infringement on patents connected with the Barrett lifting jack. The Duff Manufacturing Co. manufactures these jacks.

Glass Cutters.—The Smith & Hemenway Co. of 296 Broadway, New York city, announces that it has completed arrangements with John Brynes to market exclusively all of his glass cutters, the new and the old Enterprise, as well as the XXX and Special Black Diamond. The goods can be secured through company's salesmen or direct.

Filters for Yarn Mill.—A battery of filters will be placed in the yarn mill of the Barnesville (Ga.) Manufacturing Co. by the New York Filter Manufacturing Co. of 26 Cortlandt street, New York city. This filter company has also received contract for a large diameter filter for the factory of the Eugene P. Peyster Collar Co. at Glens Falls, N. Y.

Engine at Paris Exposition.—The engine which is to furnish the electric-light and motive power for the special machinery exhibit of the United States at the Paris Exposition left New York a short time ago. This engine, which is a tandem compound of 350 horse-power, direct-connected to a generator, was built by the Ball Engine Co. of Erie, Pa.

Increasing Popularity of Boiler.—The introduction of the Paragon boiler of M. De Puy is being rapidly pushed. The growing popularity of these boilers is such that their introduction is materially assisted by the merits that they have generally been acknowledged to possess. The rapid and economical steaming qualities of Paragon boilers appeal to every user of steam-power. M. De Puy, patentee, 19 South street, New York.

New York Filter Contracts.—Important contracts for filtering apparatus continue to be filed by the New York Filter Manufacturing Co. of 26 Cortlandt street, New York city. The most recent orders included plant for town water supply at Danville, Pa.; municipal filter plant for Canton, Pa.; also for Rocky Mount, N. C. The city of Norfolk, Va., which recently ordered 6,000,000-gallon daily filter plant from the New York Company, has contracted for filters to purify 2,000,000 gallons additional per day.

Cornell Gas Engines in Pittsburgh.—One of the largest contracts for gas engines that has ever been placed from Pittsburgh, Pa., was obtained last week by the Cornell Machine Co. of Chicago. The contract calls for three 50-horse-power, two 40-horse-power, two 35-horse-power and one 25-horse-power gas engines for electric lighting. The Cornell Machine Co. is to be congratulated on receiving this contract, especially as there were fourteen competitors in the field, and the award was made only after a hard fight to show superiority.

How They Grow.—The graphite productions of the Joseph Dixon Crucible Co. are daily coming more and more into use. The sales of the goods are now made throughout the entire world. The growth of this company's works at Jersey City, N. J., is constant, not a year in the past decade having gone by without some material addition or improvement being made to the plant. The latest addition is one four stories high, 40x135 feet, to the pencil factory. The installation of a steam and electric plant to cost about \$35,000 is being considered.

Machinists' Supplies, etc.—Messrs. Chas. H. Besly & Co. of 10 N. Canal street, Chicago, state that their December business is unusually brisk, and that their factory has been improved with new boilers and engines in order to facilitate their output. The new power is supplementary to the water-power they have been using. The plant is running sixteen hours on four days of the week. Messrs. Besly & Co. are receiving numerous orders for Helmet bronze in sheet for flat springs and in wire for round springs; having immense stocks of this on hand, they can make immediate shipments. It is suggested that orders be placed in this firm's line, as prices will advance next month.

Of Interest to Builders of Agricultural Machinery.—Manufacturers of agricultural machinery, etc., are invited to correspond with L. B. Ball of Northville, Mich. Mr. Ball recently sold his interest in the Buhl Malleable Co. of Detroit because his health will not allow office confinement. He was manager of the company and secretary of the Detroit Sprocket Chain Co. for many years, and demonstrated his ability as a business man. Under the name of the L. B. Ball Commercial Co. it is Mr. Ball's intention to act as salesman for manufacturers and as commercial broker.

Bullock Electrical Goods.—In November the Bullock Electric Manufacturing Co. of Cincinnati sold fifty-one machines; many were repeat orders, a form of order that is most gratifying to manufacturers. The most important sales included three 600-kilowatt alternating generators shipped to Virginia, two 150-kilowatt direct-current generators shipped to Manchester, England, etc. Among the customers may be mentioned such standard establishments as Pearson's Magazine (in England), John Wanamaker, Oakland (Cal.) Transit Co., American Type Founders Co., Pacific Coast Borax Co. and Gould Coupler Co.

Ventilators.—The necessity of ventilators is not denied by anyone nowadays. The requisite features of a practical ventilator combine to induce and prolong healthfulness. In buildings where laborers or skilled labor is employed ventilation improves the atmosphere and enables the men to give more and better work. Cotton mills and tobacco factories in the South are at this time showing interest in the ventilation subject, their attention being especially directed to the ventilators of the National Pancoast Ventilator Co. of 723 Drexel Building, Philadelphia, Pa. Literature bearing on the Pancoast ventilators will interest any manufacturer, and can be had for the asking.

Necessity of Ventilation.—The necessity of proper ventilation in buildings of all kinds is now generally acknowledged. The only question that appears after once recognizing this necessity is just what particular system of ventilation to adopt. Mr. E. A. Ormsby of 71 Summer street, Melrose, Mass., has devised and is introducing a ventilating system that has been found in use to fill the requirements to a most satisfactory extent. Users of this system have given the strongest testimonials of its effective operation. Mr. Ormsby is desirous of communicating with parties throughout the South who are available as agents for the introduction of the Ormsby ventilating system.

The Victor Telephone Manufacturing Co., Chicago, Ill., write to the Manufacturers' Record and ask the insertion of the following notice: "The Victor Telephone Manufacturing Co. have no exclusive agents or general agents who are jobbers or assemblers of telephone appliances or parts; we are individually and entirely responsible for the distinctive superiority and high quality of Victor products, their high simplicity, fewness and strength of parts, perfect insulation, ease and rapidity of operation, durability and economy of maintenance. The jobbing house who stated they controlled the output of our factory in certain territory were mistaken; they have no connection whatever with the output of our products in any section of the United States."

Machinists' Tools and Supplies.—Messrs. Charles H. Besly & Co., 10 and 12 North Canal street, Chicago, Ill., report large demands for machinists' tools and supplies, shipments being made to all parts of the United States and Canada. On "Helmet" oil, "Perfection" and "Bonanza" cups contracts have already been closed for future delivery far in excess of any former year. Besly's factory at Beloit, Wis., is being run overtime in many departments to supply the demands for their well-known specialties, which are not only being sold in this country, but among foreign orders may be noted shipments to India, Argentine, France, Germany, Russia and England. Messrs. Besly & Co. are introducing a new machine known as the "Gardner" band grinder, which will shortly be illustrated and described in these columns. In the meantime descriptive matter may be obtained upon application.

Anti-Friction Metals.—Among a number of factors that enter into the perfection of American railroad travel is the anti-friction metal. Few people outside of the immediate lines having to do with the building and operation of rolling stock realize what a feature of fast speed of trains today is the bearing used. The Damascus Bronze Co. of Pittsburgh, Pa., manufactures a line of metals for bearings, and a leaflet recently issued contains copies of letters from railroad men

telling of results attained by the use of Damascus metals. One superintendent says: "The trial brasses you supplied were applied to engine; subsequently the pair of right main brasses were removed because of being broken, having made 73,841 miles. The pair of left main brasses are still (five years later) in use, and have made 182,136 miles; the brasses are still in fair condition, and seem likely to last two years more." Leaflet sent to interested parties on application.

Technical Training.—Thorough technical training by mail is offered by a New England institution that makes a specialty of steam, electrical and engineering courses. An inspection of the school's instruction papers shows that thoroughness and accuracy distinguish its work. The instructors are all graduates of leading scientific schools and have had valuable experience along engineering lines. The supervision of such men is of evident value. The courses have been carefully planned and embrace every subject required by the up-to-date engineer and mechanic in order to have complete mastery over the theoretical details of his daily work. The school in reference is the American School of Correspondence of Boston, Mass., and it is well to know that it is a regularly chartered educational institution and not a money-making enterprise. The school endeavors to give every wage-earner an opportunity to benefit by the course, and has accordingly made the fees very low. Catalogues and other information sent on request.

Complimenting Schieren's Belting.—The latest Southern contract from a cotton mill obtained by Messrs. Chas. A. Schieren & Co. of New York was to supply entire necessary leather belting for the new McDonald Cotton Mills at Sylacauga, Ala. This firm's product of belting meets with highest favor wherever it is used. Among recent letters highly complimenting Schieren & Co.'s belting were the following expressions: "Used since 1889, and it has given us perfect satisfaction." "Belted this mill about ten years ago, and most of the belts are good and running at this time; know of no better belting and it is seldom you find any as good." "42-inch main driving belts, 30-inch three-ply driving belts and all counter belts from twelve inches down, and all machine belts have been running for two years and one-half and are entirely satisfied with them; can truthfully recommend them to anyone in the market for a first-class belt; we are also using one of your perforated dynamo belts, which is entirely satisfactory." These letters are all from Southern cotton-factory companies.

Coaling Vessels at Sea.—Regarding the recent trials made at sea by the United States government with the Lidgerwood Manufacturing Co.'s coaling device, the Marine Journal of New York says editorially: "The absolute success of the Miller conveyor for coaling vessels at sea in the trials just made outside Sandy Hook means another splendid attainment in naval development, the filling of a long-felt want. The tests showed that more than twenty tons per hour could easily be passed by the overhead system described from collier to warship. With this system it will henceforth be altogether unnecessary for war vessels to seek a port to coal, for with anything like a smooth sea they will be able to maintain their station, as, for instance, when on blockade duty, and have the coal put on board almost as readily as if moored alongside a pier. This, in fact, will be possible at sea in any weather when it is not too heavy to have hatches off. The Lidgerwood Manufacturing Co. of New York is to be congratulated in having perfected this valuable device, which will inevitably result in such great naval advantage."

Economy of Electric-Power.—The consumer is just beginning to realize the enormous saving of space and wasted power, and the economy and convenience of electric-power for any and all purposes. The increase recently in the use of electric motors has been unprecedented. The Western Electrical Supply Co. of St. Louis is exclusive territorial agent for the Eddy Electrical Manufacturing Co., manufacturer of direct-current generators and motors, and reports the demand for this apparatus as exceeding even its expectations. It is claimed these motors are as near mechanically and electrically perfect as a combination of the best engineering skill and modern machinery can produce. The small motors are of light weight, very compact, and of moderate speed, being well adapted for users requiring a small amount of power. Larger motors are of multipolar construction, with cast-steel frame. The steel of which this casting is made is of high permeability, which enables a machine of given output to be constructed of light weight. Correspondence is invited

concerning this apparatus, and the company will send details and printed matter illustrating it fully.

Unprecedented Telephone Business.—The Western Electrical Supply Co. of St. Louis reports the business of its telephone department unprecedented. Realizing that the demand of the independent companies is constantly on the increase for telephones and switchboards of the highest quality, the company offers its new 1900 'phone and "Western Express" switchboard. The company believes this is as high-grade apparatus as is on the market today, and will take pleasure in supplying a detailed report or product to anyone on the market for high-grade telephones and switchboards. The new 1900 telephone can be used both for local and long-distance work, guaranteeing satisfactory results. The "Western Express" switchboard embodies the newest and latest things in the switchboard line on the market; its general construction is perfect, both as a whole and in detail, electrically and mechanically. For rapidity of operation, ease, access to parts for inspection and repairs, freedom from defects causing cross-talk and induction disturbances, great durability and the highest efficiency, it is not excelled by any 'phone yet produced. Catalogues and full descriptive matter on application.

Outside Paints and Wall Coatings.—During recent years there has been a great increase in the use of outside paints and of wall coatings. This increase has resulted from realizing that preservation of exposed surfaces has an economical feature not to be overlooked by those desirous of lengthening the life of their buildings. For factories of all kinds, farm buildings, outhouses, light shafts, fences and outside painting generally (whether on wood, stone or brick), there have been introduced by American manufacturers a number of products. One of these products, and it has found a wide usage that is constantly increasing, is the Standard cold-water paint of the National Supply Co. of 54 John street, New York city. Farmers especially should be interested in this product, its low cost as compared to oil paints appealing strongly to their interests. "Resistance to the action of the elements is its strong point. For wall coatings the company offers the National wall coating. This latter is prepared from the best materials obtainable, after the company's own formulas, and its hygienic merits have caused it to be extensively used in all buildings where the healthiest possible conditions must be attained. In the effort to introduce even more widely its products, the National Supply Co. is prepared to hear from parties in the South, where it desires to have representatives.

Fireproofing Qualities in Paint.—The demand for fireproofing qualities in paint has caused the introduction of a number of pigments that have found extensive use. More especially do wood surfaces enter into the construction of factory buildings, and it is on such structures that a fireproofing paint is of great desirability. The Asbestine cold-water paint possesses the merits of a fireproofing paint that are in demand. This paint has qualities that are so well appreciated by insurance companies in Boston that they make a reduced rate where wood surfaces are protected by it. The United States government also appreciates this paint, and is applying it to the Olympia inside. The government also carries a stock of this paint at the Charlestown navy-yard for constant usage. Strong letters recommending the Asbestine paint are received regularly by the manufacturer. A recent letter says: "In my fire it is plain to be seen that if the inside and outside walls had been covered with Asbestine I would (in place of worthless brick and mortar) have walls that I could rebuild upon. This is in ample evidence on the portion of the walls that we had covered with Asbestine. Representatives of seven large insurance companies view with wonder the results I refer to." The Alden Speare's Sons Co., manufacturer, 300 Atlantic avenue, Boston, will give further information to those wishing it.

Heating, Ventilating, Drying.—The march of civilization in the closing years of the nineteenth century has wrought out for this generation luxuries undreamed of by their forefathers. Moreover, many things a few years since catalogued as luxuries have come to be regarded as absolute necessities. In this class may be placed the ventilation of buildings where people congregate. It having become an established fact that pure, fresh air is needed in all schools, churches, theaters, factories, machine shops and kindred structures, the question of the best means of its attainment naturally suggests itself. The "A B C" fan system takes fresh air, draws or forces it over a bank of steam coils,

through a fan propelled by an engine or motor, and delivers it steadily, noiselessly and voluminously at any temperature desired throughout the building, to be breathed but once and then expelled. Advantages so numerous and self-evident as this mere reference to the subject suggests would naturally give the impression that such could be secured only at great comparative expense, but neither as to first cost nor operating expense is the "A B C" system handicapped. The heating and ventilating field does not by any means cover the possibilities which lie latent in the apparatus mentioned. It has marvelous exsiccant qualities, and has been applied to the drying of all kinds of material from which moisture can be extracted. The two factors essential to a drying plant are secured, viz., degree of heat sufficient to volatilize the moisture and constantly-changing volume of air to absorb the same and carry it away. The knowledge gained through years of experience in designing and installing some of the largest heating, ventilating and drying plants in this country and Europe by the American Blower Co. of Detroit, Mich. (manufacturer of the "A B C" system) enables it to produce such an apparatus as is here mentioned. Full information on application.

TRADE LITERATURE.

December, 1899.—The Bullock Electric Manufacturing Co. of Cincinnati, Ohio, issues a date card of this month in colors.

Crescent Steel.—"Sparks from the Crescent Anvil" contains some information pertinent to manufacturers. It is published by the Crescent Steel Co. of 242 First avenue, Pittsburgh, Pa., and elsewhere.

Mining Cars, etc.—Peacock's Iron Works of Selma, Ala., has issued a leaflet referring to its product of self-oiling tram-car wheels, axles, mining cars, car iron, etc. All sizes and descriptions of these goods are manufactured by the company.

Plant System Calendar.—The 1900 calendar issued by the Plant system is being distributed to the friends of that corporation. This calendar makes an efficient reminder of the day and date, and is most suited for wall-hanging. The Plant system of railways, steamships and hotels is especially connected with Florida and Cuba, also Nova Scotia, where the finest health and pleasure resorts are found.

Ice Machinery.—One of the most successful machines on the market for ice-making and refrigerating purposes is the Remington, and a new catalogue of this line has been issued (catalogue "E"). A general description is given of the methods employed and machinery manufactured, and the book is particularly interesting to those intending to purchase machinery of this class. The Remington Machine Co. of Wilmington, Del., will supply catalogue or any specified information on application.

Tank Talk.—"Tank Talk," by the men who make them right, is the title of a leaflet issued relative to tanks and vats for all purposes. Tanks and vats are extensively used, and being sole manufacturers in this class only, Messrs. G. M. Davis & Son, "The Tank Men," of Palatka, Fla., are prepared to supply the highest grade of goods. For railroads, water works, mills, mines, hotels, tanneries, distilleries, breweries and other plants these tanks are made. The product of the firm has varied from a capacity of seventy gallons to 100,000 gallons, and any size can be furnished to specifications. Send for booklet or catalogue.

1900 Columbia Desk Calendar.—Like its predecessors, this century-end edition of the Columbia desk calendar is designed to furnish the user with a convenient memorandum pad arranged according to the days of the year, and, incidentally, to supply valuable guidance to all seekers for information on the subject of quality in bicycles. The editions of recent years have been regarded as so entirely satisfactory that no changes have entered into the general character and make-up of the present compilation. Copies of the calendar may be obtained by remitting five two-cent stamps to the "calendar department" Pope Manufacturing Co., Hartford, Conn.

A Handsome Calendar.—One of the handsome calendars for 1900 has as its central figure a Western plainsman who has just shot an antelope, apparently on the run. He has just galloped up and reined his horse back onto its haunches where his game lies dead. This is a typical American scene. The well-executed vignettes about the central scene illustrate sports in the Philippines, Cuba, Porto Rico and Hawaii; also live-

pigeon shooting and a group of Uncle Sam's "boys" at long-range rifle practice. This well illustrates the business of the Peters Cartridge Co. of Cincinnati, which is to furnish, as the calendar states, "ammunition for our world-wide possessions." Company will send calendar for cost of mailing—six cents.

A Satisfactory Metallic Packing.—One of the important supplies that enter into the successful and economical operation of steam plants is packing. The market today offers many kinds of metallic packing, and users are oftentimes at a loss to decide upon which brand to purchase. A booklet recently issued by the Harthan metallic packing is of interest to such buyers. This packing has been in use for several years, and proved an unqualified success. The inventor has direct supervision of the manufacture of this packing by the Reeves Machine Co. of Trenton, N. J., which is issuing the booklet referred to above. Present or prospective users of metallic rod packing are advised to examine the claims of Harthan's before placing orders.

Crushers.—In the catalogue here introduced it has been the publisher's intention to set forth as briefly and as lucidly as possible the merits of the crushers and crushing rolls made by the Arthur Fritsch Foundry & Machine Co. of St. Louis. This company's machinery has been known to the industrial world for some years, and its success has been extensive. Plans and specifications complete for erecting works are furnished when wanted; or, upon a knowledge of what is to be crushed, daily capacity required and other necessary details, estimates will be furnished. The catalogue presents a full description of the machinery referred to, with a diagram drawing showing to a nicely the principle upon which the apparatus is constructed.

General Machinery and Supplies.—The activity of recent years in all Southern industrial avenues has made a demand for machinery and supplies of all kinds. This demand has been supplied by the manufacturers of the entire country, and their facilities for prompt shipments have been taxed for months. In the South there has been developed, by reason of this demand, several large machinery and supply establishments, among which is the well-known Bailey-Lebby Co.'s extensive plant at Charleston, S. C. The Bailey-Lebby Co. issues a complete catalogue of its line that should be in the hand of every consumer in the South. The catalogue is complete of its character, fully illustrated, and contains price-lists, alphabetical indices and other conveniences demanded by modern business methods.

Rock and Ore Crusher.—The crushing of rock and ore is one of many manipulations which enter into the production of a marketable product. Crushers that have earned an excellent reputation for giving satisfactory results are always in demand. One of these satisfactory crushers is that built by R. McCully of 1324 Callowhill street, Philadelphia. The general catalogue of this crusher presents a full description of the machinery, together with some letters from users showing what it can do. Among public premiums that the McCully crusher has won were first premium (two awards, medal and diploma) at the Columbian Exposition, first premium and award at San Francisco Midwinter Fair, first premium and award at Atlanta, and first premium and award at the Philadelphia Export Exposition that just closed last month.

A Handsome Calendar.—At this season of the year commences the incoming of 1900 calendars. A handsome calendar is that issued by the Fidelity & Deposit Co. of Baltimore, Md. Printed in the national colors, the shield of the United States holds the date and day pads, while on each side are seen pictures of our army and navy officers made famous by the late Spanish-American war. Generals Lee, Miles, Shafter and Wheeler represent the land contingent, while Admirals Dewey, Schley and Sampson and Lieutenant Wainwright represent the soldiers of the sea. The Fidelity & Deposit Co. is one of the best-known corporations of its class in America, and its extensive business reaches out all over our country. The company is authorized and empowered to execute bonds in lieu of personal security in all cases.

Of Interest to Foundries.—"Phosphor Bronze Facts" is the title of a creditable brochure that has been issued recently. The mechanical excellence of this booklet from the printers' point of view is worthy of notice alone, not to speak of the facts therein that are of interest to all founders. Phosphor bronze, nickel bronze, phosphorized cop-

per, phosphorized tin and babbitt metal are continually finding increased use in the steel and iron industries. The Damascus Bronze Co. of Pittsburgh, Pa., issues the booklet mentioned and the product referred to, the celebrated "Globe Brand," is its manufacture. Particular attention is called to the phosphorized copper the company makes; it contains 5 per cent. of phosphorus, and a formula and direction given enable any foundry to make its own phosphor bronze. Copies of brochure on application.

Pipe Bending.—The practical shapes into which wrought-iron pipe can be bent are numerous. The production of this class of work has progressed to a specialty, and the use of bent pipe is most extensive and constantly increasing. A booklet showing the most popular shapes that have entered into trade use has been issued by the Philadelphia (Pa.) Pipe-Bending Works of Fourth and Luzerne streets. This company engages not only to supply a regular line of bent pipes, but will undertake anything unusual that may be required in its line. The plant used is one of the most completely equipped in the country, having every modern device entering into the production of its specialty. It can furnish coils in continuous welded lengths up to 1000 feet if necessary, and other difficult construction will be contracted for. The Philadelphia Pipe-Bending Works' catalogue "A" will be sent to interested parties who may ask for it.

Pumping Machinery.—The perfection of modern pumping machinery has kept pace with the developments in other mechanical classes. The use of pumping machinery for all purposes has greatly increased during recent years, and the manufacturers of apparatus of this kind have brought to bear both experience and theoretical research in improving their product. The mine and special pumping machinery built by the Jeannsville Iron Works Co. of Jeannsville, Pa., is completely illustrated and described in the concern's latest catalogue, as well as priced and otherwise made pertinent to those who utilize pumps of diverse kinds. The plant producing the Jeannsville machinery was established in 1843, and its success in satisfactorily supplying mine pumps for the handling of water in the anthracite coal fields of Pennsylvania is ample evidence of its ability to supply pumps for any purpose whatever. Catalogues or more complete information than may be obtained therein supplied on application.

Freight, Mine and Dump Cars.—The immense freight shipments now being handled by the railroads of the country have made in some quarters a dearth of cars to such an extent that the transportation of products has been greatly delayed. The placing of contracts for the manufacture of additional cars to facilitate this increased business of the railroads has made busy times for many car and car-wheel works throughout the country. American manufacturers in this line have acquired a reputation for product of the best quality obtainable, and among the prominent works for cars is that of the Bloomsburg Car Manufacturing Co. of Bloomsburg, Pa. This company has issued a catalogue concerning its cars, calling attention to its many present designs, to a number of special patterns that it has built during the past two years, and to its general admirable facilities for prompt and satisfactory execution of contracts. Established in 1863, and since that time growing rapidly as the merits of its cars and wheels became known and thus made a wide demand for them, the Bloomsburg Car Manufacturing Co. offers its services at this time. Catalogues or further information furnished on application.

Home of the Wolf.—The "Home of the Wolf" is a handsomely-printed catalogue, the front cover showing, in colors, a wolf confined in his home (cage), while through the bars in the distance is seen the immense ice-machinery factory of the Fred W. Wolf Co. of Chicago. The growth of the use of machinery for the artificial production of ice for consumption and for use in refrigerating is one that has been stupendous since the introduction of this class of machinery. One of the most widely known and universally used machines of this class is the "Linde" machine. "Universally used" is said without reservation and is literally true, as may be seen by a perusal of the list of users of the "Linde" machine. The list very clearly demonstrates the continuously-growing popularity of this machine, there being now nearly 4000 of them in almost every part of the world. The arrangement of the list is such that it is easy to find in what countries they are used, who are using them and for what purpose, with the capacity of each machine for a term of twenty-four hours.

This list will prove of interest to the trade, and the company hopes to merit a continuance of the good-will of its many patrons. Those contemplating the installation of ice or refrigeration machinery are invited to consult this company before placing orders.

The Right Men in the Saddle.

[New Orleans Daily States.]

In our issue of the 9th we printed an admirably written article from the Montgomery Advertiser headed "Farmers in the Saddle."

Now, the "farmer" is truly the right man to be in the saddle—in the South at least. His burdens since the war have been of the heaviest. Nearly every trade and industry during the last thirty years has advanced, taken on new life, adopted new, modern and advanced economic improvements. But the farmer, especially the cotton farmer, has been stuck in the mud all these years, and, from being perhaps the richest class of people in the South, they have gradually become among the poorest; their lands have become poor; their stock for the want of money has been impoverished, and, in the mighty competition of the markets, the prices of their product have become cheaper and their articles of consumption have either not been cheapened in proportion or have actually become enhanced in value.

Certainly it must be conceded that until within the past few years the outlook for the cotton farmers of the South looked inglorious. Men talked of forming cotton trusts to pull the crop; this was manifestly impracticable. Others talked of holding the crop and commanding the market. But where was the money? It is but a grim mockery to talk to men of holding what they have for sale until they can squeeze the markets when they need money to feed and clothe themselves and their families, and where was the benevolent miracle with which to furnish them with the money in such an enterprise?

Finally a little light dawned. The brainy mind of a big business man worked out a scheme which he claimed would save the cotton producer fully \$2.50 per bale on every bale of his product.

The proprietors of the States saw some full accounts in that great industrial journal, the Manufacturers' Record of Baltimore, of what is known as the round-lap cotton bale. They were impressed by the magnificent future that the scheme would open to the cotton-planting industry of the South if it should prove a success. They visited New York to investigate the matter; were satisfied that it promised the solution of the problem of the impoverished planter, and, returning to New Orleans, urged its importance upon our cotton planters.

As we have said before, the scheme antagonized immense capital. All the immense capital, aggregating many millions of dollars, invested in the old square-bale process was imperiled and rose up in opposition. But a new discovery in human industry will move mountains; the scheme has continued to grow, and it may be now safely asserted that the round bale is bound inevitably in the course of a few years to supplant the old square-bale system, and as no expert estimate on the new system has been made of a reduction of cost of less than \$3 per bale, that promises a saving to the cotton growers of fully \$30,000,000 per annum. Truly, this begins to look like getting the cotton planter once more into the saddle.

We assume that pretty nearly every article the States has printed on this subject has been read by the cotton planters of the South, and we now call their attention especially to the article printed on Thursday, the 9th inst., which is simply a verification of all that we have said of the round bale, by an experienced and wholly disinterested handler of cotton.

After reviewing some of the needless costs of the square bale, this investigator says:

"I am disinterested, and you must admit it when I say as a cotton manufacturer in the South my interest would be subserved by the continuance of these costs to the Eastern and foreign spinner, as I can get my cotton from country wagons without any of them, but the prosperity of the country demands that every citizen do his part, not to muddy the waters, but to clear them, so that the parties to be most benefited will be led aright."

Continuing, this gentleman says:

"Of course, the compress people will suffer, unless, perchance, they are wise, get out of the path of the storm and turn their compress power to running cotton spindles, in which case they will save themselves and help the country. The farmer is now paying the interest and profits on every compress in the United States. He is paying the cost of twenty-two pounds of bagging and freight on twenty-two pounds to Liverpool on every bale of cotton raised."

That the adoption of this system will displace a large amount of invested capital cannot be denied; but not nearly so much as may be supposed. The investment in compress power and building may be largely invested in cotton factories, and thus rendered useful to the public and remunerative to the owners. At any rate, it is better that any amount of capital invested in ancient and oppressive methods shall be lost by new and more enlightened methods than that millions of people shall continue to be oppressed by poverty and the loss of their labor by ancient and antiquated methods.

Like the gentleman from whose very interesting article we have quoted, the States has not the interest of a single nickel in this scheme, and in advocating it and forcing it upon the attention of our fellow-citizens we are actuated solely by a desire to advance the interests of the South; to see its ancient glory revived and its millions of workers in and dependents upon its cotton fields benefited and enriched.

We can only do our part, and if the planters of the South are so absurd as to shut their eyes to their own interests, while they dawdle about a cotton trust, when there is no trust and only the semblance of a trust in the magnificence of the scheme that is presented for their consideration, they can only in the end blame themselves.

The output in the Joplin (Mo.) district during the week ended December 9 was 12,609,340 pounds of zinc ore and 1,113,140 pounds of lead ore, valued in all at \$221,821.

Personally-Conducted Tours via Pennsylvania Railroad—Season of 1899-1900.

The Pennsylvania Railroad Co. announces the following personally-conducted tours for the season of 1899 and 1900:

Mexico and California.—A 45-day tour will leave Baltimore February 13. Fourteen days will be spent in Mexico and eighteen in California. The party will travel over the entire route by the "Mexican and California Special," the finest train that crosses the continent.

Florida.—Four tours to Jacksonville will leave Baltimore January 23, February 6 and 20, and March 6. The first three of these admit of a sojourn of two weeks in the "Flowering State." Tickets for the fourth tour will be good to return by regular trains until May 31, 1900.

Tickets for the above tours will be sold from all principal points on the Pennsylvania Railroad. For detailed itineraries, giving rates and full information, address A. Courlaender, Jr., Passenger Agent Baltimore District, Baltimore, or Geo. W. Boyd, Assistant General Passenger Agent, Philadelphia.

FINANCIAL NEWS.

New Corporations.

H. L. Gueydan and others are interested in the plan to open a bank at Gueydan, La.

John T. Campbell has been elected cashier of the new bank at Braidentown, Florida.

The Banking & Trust Co. of Johnson City, Tenn., has been formed, with \$25,000 capital stock, by John D. Cox and others.

The bank of Como, Miss., has been organized to do business at that place with Thomas H. Taylor, president, and C. D. Reiney, cashier.

The Old Dominion Building and Loan Association of Richmond is considering the idea of securing a charter giving it the powers of a trust company.

The Guaranty Investment Co. has been formed at Montgomery, Ala., with J. W. Black, president; R. P. McDavid, vice-president, and L. B. Farley, secretary and treasurer.

The Mutual Life Assurance Co. has been commissioned to do business with offices at Columbia, S. C. It is capitalized at \$25,000. F. Maitland Brickman is one of the promoters.

The Union Trust Co., recently organized at Washington, has elected Edward J. Stellwagen as president; James G. Payne and George E. Hamilton, vice-presidents; Charles S. Bradley, treasurer, and George E. Fleming, secretary.

New Securities.

The Richmond, Fredericksburg & Potomac Railroad Co. has declared a dividend of \$4 a share.

I. B. Loose has purchased the issue of \$2100 in 4 per cent. bonds of Hagerstown, Md., paying 104.53.

J. E. Laidler of Hawkinsville, Ga., has purchased the issue of \$9000 in bonds of Toccoa, Ga., at a premium of \$556.

E. J. Davidson, city clerk, will receive bids until December 21 for the issue of \$10,500 in bonds of Cartersville, Mo.

The town of Starkville, Miss., will vote December 28 on the question of issuing \$22,500 in bonds for improvements, to bear 5 per cent. interest.

The finance commission of Fredericksburg, Va., may be addressed relative to the issue of \$25,000 in bonds. They will receive bids until December 20.

The city council of Winchester, Va., has approved a bill to be presented in the State legislature authorizing the city to issue \$30,000 in bonds for improvements.

The city of Salisbury, N. C., will receive bids for bonds to the amount of \$25,000 until January 8. They will bear 5 per cent. interest. S. F. Lord is mayor.

The commissioners' court of Marion county, Texas, has determined to issue \$200,000 in bonds for refunding purposes. The court may be addressed at Jefferson, Texas.

The city of Norfolk, Va., will ask for legislation authorizing it to issue \$75,000 in bonds for improvements, in addition to amounts already placed on the market. The mayor may be addressed.

Another election is to be held at El Paso, Texas, to decide the question of issuing \$50,000 in bonds for various purposes. The recent election has been declared illegal. The mayor will give further particulars.

The Manufacturers' Record is informed that the total issue of bonds to be made by the Norfolk Railway & Light Co. will be \$2,600,000. They will bear interest at 5 per cent. and run for fifty years. About \$1,500,000 worth of these bonds will be offered to the public, but the date of sale has not as yet been determined. R. Lan-

TABLE OF CONTENTS.

EDITORIAL:	Page.
A Hint from England.....	345
Co-operating with Railroads.....	345
Charleston and Cuba.....	345
To Win Chinese Trade.....	345
Labor for Mills.....	345

The Seaboard Consolidation.....	346
The Southern Prospect.....	346
Electricity in America.....	346
Furnace Stocks Small.....	346
Eastern Iron Markets.....	347
Notes from Bristol.....	347
Enlarging Its Operations.....	347
Mines of Asia Minor.....	347
Louisiana's Rock Salt.....	347

RAILROAD NEWS:	
How the Southern Builds.....	348
A Tribute to Mr. Hoffman.....	348
Developing Arkansas.....	348
Extending the Chattahoochee Valley.....	348
Coal & Iron Railroad.....	348
Hotels and Southern Travel.....	348
Better Iron Than Grass.....	348
The Guyandotte Valley Road.....	349
To Haul Turpentine.....	349
Railroad Notes.....	349
Jottings at the Ports.....	349

TEXTILES:	
The Cotton Movement.....	349
5000-Spindle Mill for Mississippi.....	349
A Proposition to Cotton Mills.....	349
Textile Notes.....	349

COTTONSEED OIL:	
The Market for Cottonseed Products.....	350
Cottonseed-Oil Notes.....	350

PHOSPHATES:	
Phosphate Markets.....	350
Phosphate and Fertilizer Notes.....	350
More Mules for Africa.....	351

LUMBER:	
One View of Lumber.....	351
Lumber Market Reviews:	
Baltimore.....	351
Charleston.....	351
Mobile.....	351
Beaumont.....	351
Lumber Notes.....	351

CONSTRUCTION DEPARTMENT:	
New Enterprises.....	352
Building Notes.....	354
Railroad Construction.....	355
Machinery Wanted.....	355
Trade Notes.....	356
Trade Literature.....	357
The Right Men in the Saddle.....	358

FINANCIAL NEWS:	
New Corporations.....	358
New Securities.....	358
Dividends and Interest.....	358

Walter Williams at Richmond is president of the railway company.

Dividends and Interest.

The Northern Central Railway Co. has declared a dividend of 4 per cent. semi-annual.

The American Bonding & Trust Co. of Baltimore has declared a dividend of 3 per cent.

The Fidelity & Deposit Co. of Maryland has declared a quarterly dividend of 3 1/2 per cent.

The Spartan Mills Co. of Spartanburg, S. C., has declared a semi-annual dividend of 4 per cent.

The Pacolet Manufacturing Co. of Pacolet, S. C., has declared a semi-annual dividend of 5 per cent.

The Security Storage & Trust Co. of Baltimore has declared a semi-annual dividend of 2 1/2 per cent.

The Laurens Cotton Mills Co. of Laurens, S. C., has declared a semi-annual dividend of 4 per cent.

The Dallas Manufacturing Co. of Huntsville, Ala., has declared a dividend of 3 1/2 per cent. semi-annual.

The Whitney Cotton Manufacturing Co. of Whitney, S. C., has declared a semi-annual dividend of 3 per cent.

The Maryland Coal Co. has declared a semi-annual dividend of 2 per cent. and an extra dividend of 1 per cent. on its preferred stock.

The Newport News & Old Point Railway & Electric Co. has declared a semi-annual dividend of 2 1/2 per cent. on its preferred stock.